



AppleUser

A Database Publication

Vol. 8 No. 2 February 1988 £1.50

New enhancements
for AppleWorks 2.0

Shortcut features
on the Macintosh

Memory add-ons
for the Apple II

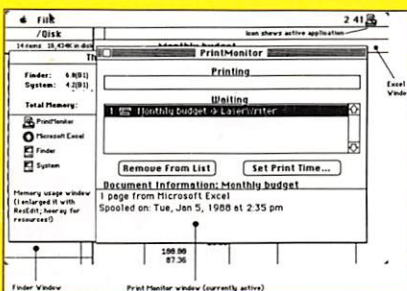
Finding a home
for Mac leftovers

Moving AppleWorks
spreadsheets to Excel

REVIEWS

- MergeWrite
- Pict-O-Graph
- MicroProlog
- Reflex
- Allegro Common Lisp
- HyperCard stacks
- + all the latest
games for the
Apple II and Mac

**The
ins
and
outs
of
Apple's MultiFinder**



**Skating to success
— on an Apple**





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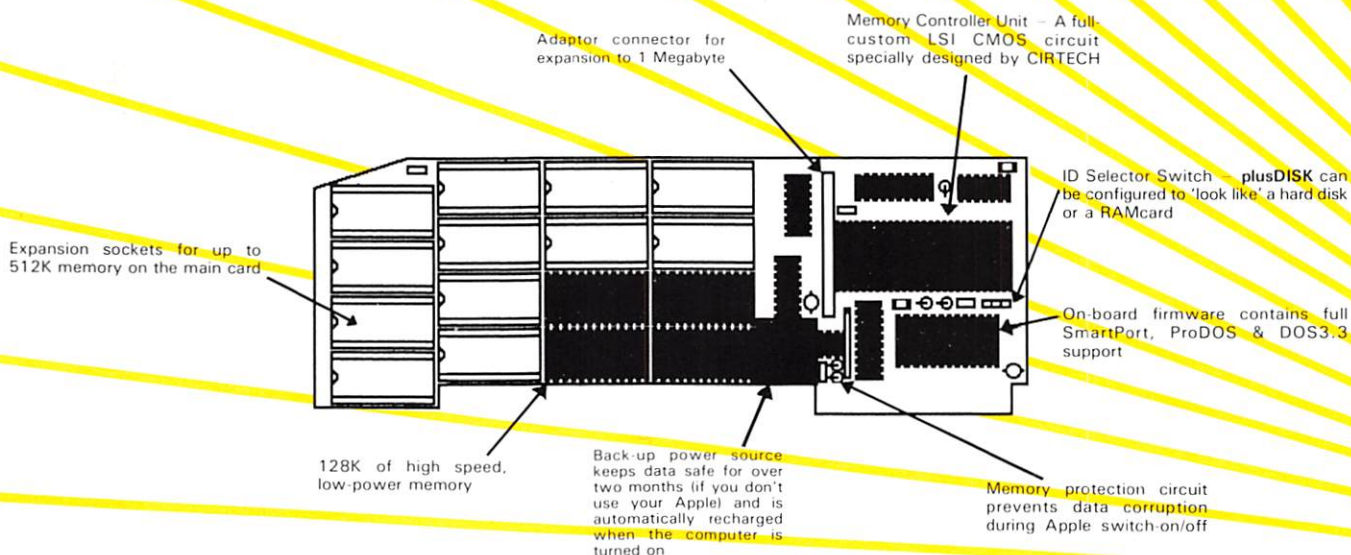
(times in mSecs)	Disk//	3.5 Disk	SCSI HardDisk	plusDISK
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Average access time	490	270	90	0.001
Maximum data transfer rate (Kbytes/second)	62.5	31.25	530	1023

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(times in Secs)	Disk//	3.5 Disk	SCSI HardDisk	plusDISK
Switch-on to AppleWorks	12.9	9.2	12.3	1.0
Load 147K AppleWorks File	73.0	55.0	31.6	24.8
Save 147K Appleworks File	79.0	58.0	26.5	17.2
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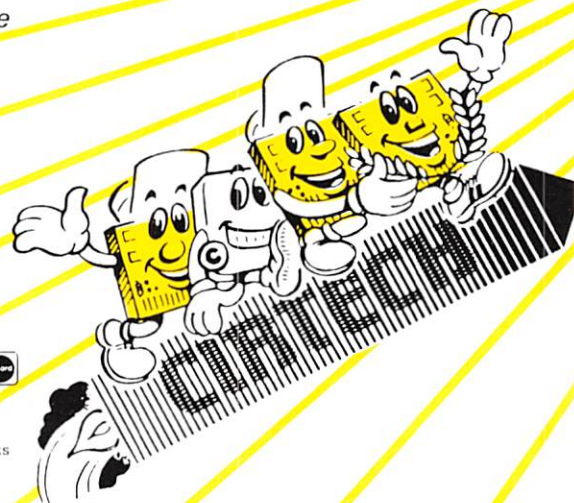
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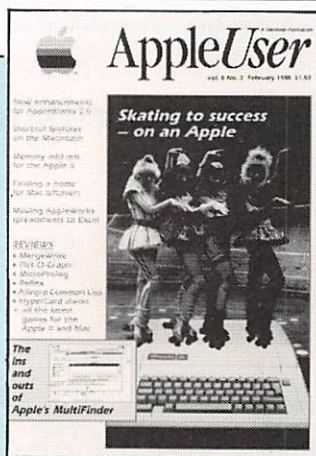
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Link your Apple II or Mac to the outside world with...

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When you join MicroLink you've got the whole business world at your fingertips – 24 hours a day. You'll have immediate access to ALL the facilities offered by Telecom Gold ... and a great deal more besides.

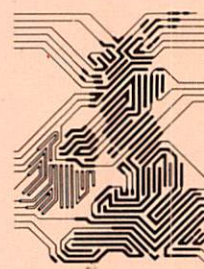


All you need – apart from your Apple – is a modem, which plugs into your telephone wall socket, plus suitable communications software.

We have provided a list of possible combinations below, ranging from the very cheapest to ones which can automatically dial the MicroLink telephone number and connect you to the service – all you have to do is type in your personal security password.

Whichever equipment you use, you will be able to call MicroLink, open your mailbox, save to disc any messages waiting for you, and disconnect in as little as two minutes.

POSSIBLE PACKAGES	
Apple II range	
A	Pace: Nightingale + Serial/Parallel card + Data Highway software (£218.15)
B	Miracle: WS2000 + serial interface + Vicom software (£238.65)
C	Pace: Linnet + Serial/Parallel card + Data Highway software (£275)
D	Miracle: WS4000 + serial interface + Vicom software (£299.90)
Apple Macintosh	
E	Miracle: WS4000 + Vicom software (£339.95)



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Desktop Publishing Show '88 Coming

THE Desktop Publishing Show 1988 is set to return to the scene of last year's acclaimed inaugural event – London's prestigious Business Design Centre.

Organiser Database Exhibitions has announced that it will again run for three days – from October 13 to 15 – and will once more be sponsored by the UK's Print Industry Research Association (PIRA).

And once again it will feature all of the major players in the industry which is currently dominated by Apple.

"We intend to build on the success of last year", says Michael Meakin, joint managing director of Database. "It is certainly not a question of resting on our laurels. For although the 1987 show more than lived up to our expectations, there were lessons to be learned".

Within days of last year's event ending, the Database DTP Show team began formulating plans for 1988.

The 1987 exhibition provided them with invaluable market research data – information that will be put to good use to ensure that The Desktop Publishing Show 1988 will reach even greater heights.

A survey undertaken during the first show revealed that 70 per cent of all visitors had attended to evaluate the technology, a further 18 per cent intended to purchase their first system there, while the remaining 12 per cent were looking for upgrades.

Of the 30 per cent looking to buy, 98 per cent of those interviewed fell into the decision maker category.

Questioned on the time period within which they intended to purchase, 46 per cent said three months, 28 per cent stated six months, 5 per cent replied nine months, while 21 per cent indicated 12 months as the time scale.

"It is this sort of research which puts us in the position to ensure that The Desktop Publishing Show 1988 reinforces its position as the premier showcase for the industry", says Michael Meakin.



Friendly Mac puts Apple into lead

POSITIVE signs are emerging that Apple Computer has broken through to the very top rank of the computer industry. In fact The Times even suggests the company is now showing the way to IBM in the world of business computing.

After the money troubles and boardroom battles of the recent past there are smiles all round at Cupertino.

And with good reason. Industry and commerce have discovered that Apple's user-friendly technology means higher productivity

and bigger profits.

The Financial Times reports that "compelling evidence is emerging in the US and Europe that the productivity of white collar workers increases dramatically if they use friendly computers such as Apple's Macintosh family – rather than the industry workhorse, the IBM PC with its formal data processing format".

Research and case studies are proving that for the first time managers and executives are using computers themselves – if they are from Apple – instead of relegating them to junior staff.

"The Macintosh has estab-

lished itself firmly in the business sector as the personal computer of choice with executives and other users who were put off by the complexity of IBM's PC/dos operating system", says the Financial Times.

A study by American management consultants Peat, Marwick Main says that ease of use promotes use in personal computing.

"Productivity, quality, efficiency and effectiveness gains are reported by all levels of white collar workers from vice-presidents to clerks".

In the UK a pilot project involving networked Macintoshes and IBM PCs has been carried out at the Trustee Savings Bank and monitored by management.

Jack Large, controller of financial services development for the TSB, said: "As of today, I believe the Macintosh is the most effective executive workstation available".

Says The Times: "IBM and Microsoft are seeking to imitate aspects of Macintosh technology with the OS/2 Windows Presentation Manager.

"Apple has done everything it could over the last few years to prove that the Macintosh was a good deal more than the executive toy that many critics suggested when first announced in 1984".

Tandy clone mooted

INDUSTRY rumours in the United States suggest that the giant electrical retail store Tandy is planning to release a Macintosh clone.

Tandy, currently one of the largest manufacturers of IBM clones, held a meeting last Christmas to decide which direction the company and its products should take.

The full outcome of the meeting is not yet known, but sources suggest that a move towards

a Macintosh clone would be a sensible one following the machine's tremendous corporate success in America.

Tandy recently advertised for hardware and software engineers familiar with the Macintosh.

However, cloning the Mac will not be easy. Unlike IBM, Apple chose to opt for a closed architecture system which effectively ruled out any third party developments.

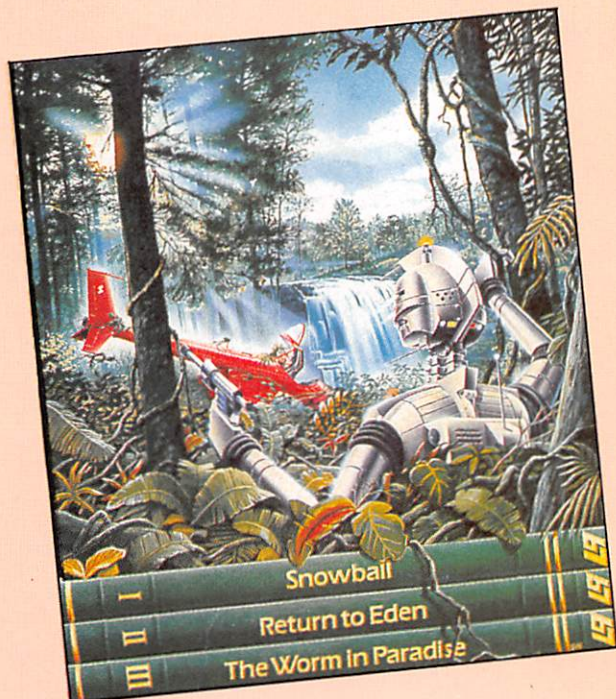
AppleUser SPECIAL OFFERS!

Two top adventure trilogies for you to play

Award-winning software house Level 9 has extensively re-written some of their best-selling adventures, and released them in two trilogies: *Jewels of Darkness* and *Silicon Dreams*.

In the *Jewels of Darkness* trilogy you start with *Colossal Adventure*, containing all the treasures, creatures, rooms and puzzles of the mainframe original.

In *Adventure Quest* you must discover the Old Roads to the Dark Tower, Fortress of the Demon Lord. Only there can you defeat him. There's magic in the air in *Dungeon Adventure*. Can you discover the treasure while facing the perils of skeletons, carnivorous jellies and orcs?



The first adventure in the *Silicon Dreams* trilogy is *Snowball*. You awake from suspended animation to find your spaceship on a collision course with Eden. In *Return to Eden* you must prevent the defence robots from destroying your ship. You have lost your memory in the *Worm of Paradise*, and you may have to join the governing party to regain it.

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<i>Jewels of Darkness</i>	£19.95	£14.95	£5	£30.95	£7
<i>Silicon Dreams and Jewels of Darkness</i>	£39.90	£27.90	£12	£41.90	£16

**You save £5
when you buy
one of these
packs or £12 if
you buy both**

TO ORDER PLEASE USE THE FORM ON PAGE 65

MODULAR DESIGN FOR NEW LASER PRINTERS

A NEW range of laser printers that spans the range of activities from general office printing to sophisticated desktop publishing has been announced by Apple.

One of the main features of the LaserWriter II series is the new modular design. All three printers share a common platform, the Canon LPB SX second generation printing engine.

The LPBSX offers darker blacks, higher reliability, longer lifespan and enhanced paper handling capabilities.

Apple claims that by having a common printing engine it provides an easy and cost effective method of upgrading the printers as users' needs grow.

The LaserWriter II can handle

Upgrades cheaper

eight pages per minute at a resolution of 300 dpi and its 300,000 page rated duty cycle is triple that of the earlier models.

And Apple II users have not been left out – the IINTX and IINT models are fully compatible with the IIGs.

The LaserWriter IINTX is the personal computer industry's first available Motorola 60280-based laser printer.

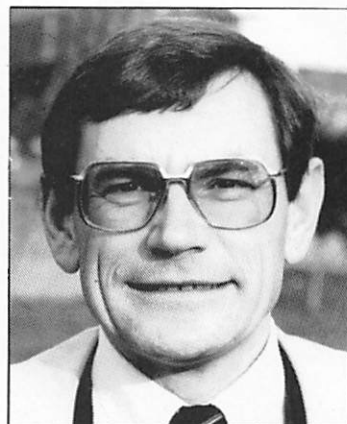
It is claimed to meet the high performance, high volume needs of workgroups and is also capable of sophisticated text and

graphics that are required by design professionals.

Apple's general business printer, the IINT, offers improved print quality and more memory than the LaserWriter Plus. It gives users the versatility to perform a variety of publishing tasks from correspondence to complex newsletters and presentations.

The LaserWriter IISC is a low-cost, single user laser printer offering 300 dpi full page text and graphics.

It has 1Mb of ram and an SCSI interface which provides high speed data transfer capabilities for fast printing and daisy chaining up to six additional SCSI peripheral devices. Prices from £1,995 to £4,495.



Adobe's choice

THE newly established European subsidiary of Adobe – Adobe Systems Incorporated – has appointed Jerry Byma as managing director.

Based in Amsterdam, Mr Byma will be responsible for marketing, sales and support of PostScript products, Adobe Illustrator, and Typeface Library for the Macintosh.

Print centres plan

A PURCHASING agreement to install desktop publishing systems based on the Macintosh has been signed between Kall-Kwik Printing Centres and Apple UK.

Under the terms of the contract, Kall-Kwik's 140 franchised printing centres will be able to buy DTP systems for design, illustration, page layout and printing.

The systems will be based on the Macintosh SE with internal 20Mb hard disc, Apple LaserWriter Plus, selected Apple and third party software, and a number of downloadable fonts.

Kall-Kwik Centres will also be

able to support customers with MSdos data files by adding the Apple PC drive and card to their suggested DTP configuration.

"The addition of Apple DeskTop Publishing to our centres' resources will provide a wider range of artwork and production methods, and greater flexibility in terms of editing capabilities", said Ian Bartlett, Kall-Kwik's marketing manager.

Richard Bradley, Apple UK's DTP marketing manager said: "We see the agreement as important as it will allow us to penetrate the quick-print market".



Data transfer

WITH Dataware's Macstreamer 9-track tape system it is now possible to transfer data between the Macintosh SE, II, and other mini and mainframe computers by using industry standard tape.

Half inch tape has been the tried and proven medium for data storage, archiving and data exchange for more than 20 years.

Dataware (0734 699688) says that its Macstreamer can read and write IBM/ANSI compatible tape formats at up to 1Mb per minute, and can handle 7in or 10in reels of tape.

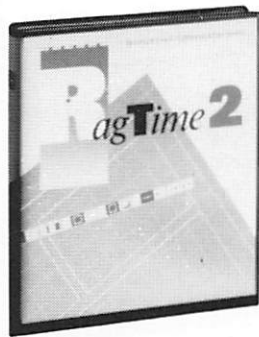
Macstreamer comes as a complete package, including tape drive, controller, software and cables. Price £3995.

UPGRADE FOR RAGTIME

DESKTOP publishing specialist Heyden has announced that it is to distribute the revised version of the popular German package, RagTime.

RagTime2 is a fully integrated office tool which offers word processing and spreadsheet functions along with powerful page make-up facilities.

The package is now capable of working in colour when used



with the Macintosh II. Heyden (01-203 5171) claims that the graphics capabilities of RagTime2 are much more sophisticated than the earlier version.

Price £495.

Blyth Software expands

PRODUCER of the Omnis range of micro database programs – Blyth Software – has announced that it is to take on 22 extra staff for its sales department.

Nirao Rad, Blyth Software's European sales and marketing manager, said: "People are the lifeblood of any company; our target is to recruit the right people for these demanding but rewarding positions".

The company's success in developing business software for the Apple range has put it in a strong position in the UK and European markets.

Blyth Software has undergone rapid growth since it first released the Omnis database for the Apple II in 1982.

In 1985, Omnis 3, a relational database for the Macintosh appeared on Softsel's Software Hotlist, the first time that a British applications product had ever achieved such a penetration in the US market.

Getting started

PROLOG, the language, has been on main-frame computers since around 1970 and exists in a number of rather different implementations. In the early 1980s Logic Programming Associates produced Micro-Prolog running under CP/M and this has since migrated to 6502 based micros such as the Apple II, as well as other micro-processor systems such as 8086/8088 MSDos machines and the 68000 based Macintosh.

On the Apple II, Micro-Prolog runs under Prodos 8 and will run equally on a II+, a IIe, IIc or IIgs. It is loaded by running the SYS file PROLOG, following which you are greeted by the Prolog sign – on message shown in Figure 1.

Microprolog needs BASIC.SYSTEM to be active, so you cannot simply make a turnkey Prolog disc by renaming the Prolog SYS file as PROLOG.SYSTEM. The obvious thing to do is to create a Basic STARTUP program which runs Prolog. This works perfectly and I cannot quite understand why it is not already on the disc.

Micro-Prolog expects upper case input and so on most Apples you must remember to keep the Caps lock key down. However, Micro-Prolog is characterised by an apparent lack of faith by the authors in their own product and so there are not one, not

David Stevens works out with Micro-Prolog on the Apple II

two, but three front-ends to the system, each of which expects lower case input. This can cause confusion to someone not used to the system. For example in one of the front-ends, the two commands list all and LIST ALL will list the program but in two entirely different formats.

Actually, I am being very unfair suggesting that the authors have no faith in Micro-Prolog. A more likely reason for so many front-ends is a desire to make it more user-friendly, coupled with a wish to program something useful in Prolog.

Each of the front-ends, which go under the names of MICRO, SIMPLE, and MITS!, acts as a translator and consequently slows the compilation and running of Prolog programs considerably. However, they do make writing, reading and understanding Prolog much easier. Compare listings I, II, and III which show the same program in standard Micro-Prolog with the MICRO front-end, in SIMPLE, and in MITS!

Chris Colbourn, when looking at Mac-

Prolog v 2.0 in January's *Apple User*, noted that many users' problems with Micro-Prolog were related to rather impoverished programming environments on other machines. Well, I'm sorry to say it, but the Apple II version 1.3 comes in this category.

The only real help with programming is that when Return is pressed and you have not entered enough right hand brackets – the system prompts you with the number outstanding. This is actually very useful since Micro-Prolog is heavily dependent on brackets. Anybody who is used to standard, (Edinburgh or DEC type) Prolog will have noticed from the first listing that Micro-Prolog is quite different. There is basically only one kind of term in Micro-Prolog – the list – and lists are enclosed in round brackets with list elements being separated by spaces.

Editing technique

The & prompt of Figure 1 indicates that the supervising system is ready to accept a command or a clause. The dot following the & prompt is the keyboard read prompt. Editing is accomplished by loading an editor module, then issuing the EDIT command followed by the clause which

```
((dict is-solution))
((dict legalise))
((dict transforms))
((dict opposite))
((dict is-peaceful))
((dict safe-for-goat))
((dict safe-for-cabbage))
((safe-for-cabbage (X Y Z X)))
((safe-for-cabbage (X Y Z x))
  (opposite Z x)
  (NOT EQ X x))
((safe-for-goat (X Y X Z)))
((safe-for-goat (X Y Z x))
  (opposite Y Z)
  (NOT EQ X Z))
((opposite N S))
((opposite S N))
((is-peaceful X)
  (safe-for-goat X)
  (safe-for-cabbage X))
((transforms (farmer rows himself) ((X Y Z x) to (y Y Z x)))
  (opposite X y))
((transforms (farmer rows wolf) ((X X Y Z) to (x x Y Z)))
  (opposite X x))
((transforms (farmer rows goat) ((X Y X Z) to (x Y x Z)))
  (opposite X x))
((transforms (farmer rows cabbage) ((X Y Z X) to (x Y Z x)))
  (opposite X x))
((legalise () (S S S S)))
((legalise (XY) Z)
  (legalise Y x)
  (transforms X (x to Z))
  (is-peaceful Z))
((is-solution X)
  (legalise X (N N N N))
  (PP))
```

Listing I: The Farmer Problem in Micro Prolog and in Micro

Figure 1:
The MicroProlog
sign-on message

```
Apple micro PROLOG 3.1
(C) 1985 LPA Ltd

26922 bytes free
```

```
X is-solution if
  X legalise (N N N N) and
  PP
() legalise (S S S S)
(XY) legalise Z if
  Y legalise x and
  X transforms (x to Z) and
  Z is-peaceful
(farmer rows himself) transforms ((X Y Z x) to (y Y Z x)) if
  X opposite y
(farmer rows wolf) transforms ((X X Y Z) to (x x Y Z)) if
  X opposite x
(farmer rows goat) transforms ((X Y X Z) to (x Y x Z)) if
  X opposite x
(farmer rows cabbage) transforms ((X Y Z X) to (x Y Z x)) if
  X opposite x
N opposite S
S opposite N
X is-peaceful if
  X safe-for-goat and
  X safe-for-cabbage
(X Y X Z) safe-for-goat
(X Y Z x) safe-for-goat if
  Y opposite Z and
  not X EQ Z
(X Y Z X) safe-for-cabbage
(X Y Z x) safe-for-cabbage if
  Z opposite x and
  not X EQ x
```

Listing II: The Farmer Problem in Simple

needs attention. You then have the standard Apple screen editing via the Escape key sequences and the arrow keys, which is not very exciting to say the least. After editing it is advisable to remove the editor from memory to increase program work space.

On the positive side, programs are stored as standard text files so you can create them with a word processor, but then, on the negative side, running and testing then becomes a real chore with so many changes of system.

The program mentioned above, solves (with multiple, correct answers) one of those logic problems which always appear in kid's comics. This one is where a farmer has a goat, a wolf and a cabbage on one bank of a river and he can either row himself, or at most himself and just one possession, across the river in a single passage and yet he wishes to get himself and all three possessions across.

Unfortunately he dare not leave the goat with the cabbage nor the wolf with the goat. How does he do it?

Well, I could never solve that type of problem without a lot of pencil and paper. Yet this program, which is based on one described by Tom Conlon in Learning Micro Prolog (Addison-Wesley Publishing) can do it quickly. It is worth noting that this book which is considered by many to be a very good introduction to Prolog is written entirely around SIMPLE, and this Apple Micro-Prolog implementation of it complements the book very well as a teaching tool.

The other two front-ends are not so well known, although there is a book called Micro-PROLOG Rules! which concentrates on MITS!.

Indeed, if you want to know about MITS! you more or less have to buy the book because the manual which comes with Micro-Prolog tells you very little. The manual is, by the way, very concise and quite difficult to understand if you don't already know Prolog.

The drawback with using the syntax simplifying front-ends is that after loading, for example SIMPLE, there is only about 12k of memory left in which to put a program and so the tracing/debugging utilities which are provided on disc are almost impossible to actually use. This is a pity because Prolog is memory hungry in operation and a very small programming slip can easily cause programming execution to cease for that reason without any easy way of finding out where or why.

Pros and cons?

Without the front-ends in operation there is about 26k of program space available, which is very much better for debugging and tracing – but of course you have lost the simplicity of their programming syntax. Fortunately, a program created under a front-end will still load and run under Micro-Prolog itself, but the syntax is very different in appearance and as such is rather confusing to a beginner.

Micro-Prolog has a number of built-in programs. These cover functional areas which comprise arithmetic and string operations, input and output to disc and serial ports and printers (if you have them), data base operations and the handling of logical operators. There are in-built primitives for cursor handling, lo-res graphics, and control of the Apple soft-switches and joysticks.

To people versed in the ways of imperative programming – that is using "normal" sequential languages such as Basic, Pascal or Fortran – the arithmetic of Prolog may seem limited in some senses, but very powerful in others.

I do not want to get into a description of Prolog but you can, for example, not only ask what is the sum of two numbers (as in other languages), but also ask what number has to be added to a particular number to give a particular sum. This may not be greatly useful – you can with a minimum of thought do the same in Basic – but look again at the listings and the problem as posed. Can you program Basic to handle that? Of course you can, but it will take quite some time.

To me this is the nub of the problem of programming in Prolog. The farmer problem posed above is interesting to solve, but you can do it with pencil and paper, and having done it you do not need to do it again. A computer program is only worth writing if it can be used over and over again to save time in the long run or to give pleasure for a long time as with a game.

Hence, word processors are very useful programs, spreadsheets are very useful, data bases are useful and graphing programs are very useful. (Little Brick Out is also useful!). The farmer problem, as a program, is not useful – except as a teaching tool.

Prolog can of course be used to write useful programs. These consist of data-bases of facts and rules about those facts which may be interrogated to provide answers which may not have been immediately obvious to the user because of the sheer quantity of data available. It must be clear that such a program is never going to run on Micro-Prolog because of the memory constraints of the system.

Micro-Prolog, then, is not going to be useful for writing useful programs. It is, however, very useful for teaching the concepts of programming in Prolog and, perhaps more importantly, for teaching concepts of logic.

If you are interested in learning about Prolog and the questions it can raise in your mind then LPA's Micro-Prolog is well worth considering. On the Apple II it is very similar to Micro-Prolog on other computers, which could be important if you need to use machines in different places. It is even similar to the basic system on the Macintosh – but not, alas, the full blown MacProlog described last month.

Product: Micro-Prolog from Logic Programming Associates with SIMPLE and MITS! as front ends.

Price: £65

Requirements: An Apple II series computer with at least one disc drive and preferably an 80 column card or built-in equivalent. A II+ should be fitted with a 16k language card to run Prodos.

Supplier: Logic Programming Associates, Studio 4, Royal Victoria Patriotic Building, Trinity Road, London SW18 3SH.

Tel: 01-871 2016

```
is-solution :
legalise :
1 ( ) legalise (S S S S)
transforms :
1 (farmer rows himself) transforms ((X Y Z x) to (y Y Z x))
if
if
opposite if
2 (farmer rows wolf) transforms ((X X Y Z) to (x x Y Z)) if
if
opposite if
3 (farmer rows goat) transforms ((X Y X Z) to (x Y x Z)) if
if
opposite if
4 (farmer rows cabbage) transforms ((X Y Z X) to (x Y Z x))
if
if
opposite if

opposite :
1 N opposite S
2 S opposite N

is-peaceful :

safe-for-goat :

safe-for-cabbage :
```

*Listing III:
The Farmer Problem
in MITS!*



Software shortcuts

Duncan Langford

explores the realm

of the Mac's

undocumented features

LAST month I gave some hints on the operation of the Mac's Finder, and promised that this time I would bring together shortcuts and undocumented features on other programs released by Apple for the Macintosh.

Incidentally, although the phrase "undocumented feature" is usually used by programmers to describe a program bug, I'm using it to mean the opposite!

Before the shortcuts themselves, a repeated word about the keyboard. As I said last month, most users probably have either a MacPlus or a Mac SE, where keys are labelled. But to make sure that when I mention a particular key it's clear which I

mean, Figure 1 shows the four main short-cut keys. The marked short-cut keys are in exactly the same position as on the old 128k Mac keyboard: "Clover" is used to describe the key sometimes called the "Function" or "Command" key.

Let's start with what must be one of the oldest Mac programs still in regular use – MacPaint. Originally supplied (together with MacWrite) free with every new Macintosh, it's still popular over three years later, even though subsequent programs such as FullPaint and Superpaint have greatly improved on it.

The principal advantages of MacPaint – apart from the fact that, for most, it was free – are the small amount of memory it needs

will remain undistorted if Grid has first been selected from the Goodies menu (see Figure III).

To move an object, it's selected with the rectangle or lasso, and click-dragged from inside the box. Sometimes, however, the object is too small for accurate positioning – the cursor arrow itself may cover up the object.

In these circumstances, try selecting with the lasso and moving the cursor away from your object, to the bottom edge of MacPaint's drawing window. There's a position about two pixels up from the lower edge of MacPaint's display window where the cursor will change from the lasso to an arrow: Click-dragging will then move your object, wherever it may be located on the screen (see Figure IV).

While your object is selected by either the rectangle or lasso, multiple copies of it can easily be made. Simply holding down Option while click-dragging the object clones a single copy (see Figure V), while holding down Option Clover allows multiple copies. The speed of dragging controls the number of copies (faster = fewer), while the currently selected line width determines the extent to which multiple copies are offset from each other (see Figure VI).

As always in MacPaint, holding down the Shift key constrains movement in either the horizontal or vertical direction, depending on which you first choose.

The spray can has always been one of my favourite tools, but it was only comparatively recently that I found it is possible to spray beneath objects already on the screen, by holding down the Option key while spraying. This also works with the brush, incidentally.

Finally, MacPaint has several admittedly unfriendly aspects. One of these which may be useful – if not done accidentally – is to hold down Clover while Quitting the program. This automatically ejects discs from internal and external drives, and gives the Mac a cold reboot.

to operate, making it easy to use with the Switcher, together with the excellent quality of its ImageWriter "Final" printing mode.

The printing is so good that I'd suggest even for those with later paint programs that it's well worth while importing a picture into MacPaint for a test printing. You could well be surprised at the improvement in quality.

To draw a box or circle, the relevant shape is of course chosen from MacPaint's menu. But, if you'd like your shape to be drawn in the currently selected pattern, rather than black, just hold down the Option key while drawing.

When drawn, it's possible to resize the shape. First select it with the rectangle – the famous "marching ants" display – then move the cursor to the edge of the selected box, when it will become an arrow. Hold down Clover and click-drag in the required direction. Dragging inward makes the shape smaller, outward, larger (see Figure II). Should your shape contain a pattern, it

MacWrite

The other program introduced with MacPaint was, of course, the word processor MacWrite. Later word processors such as Microsoft's Word or Write Now have unfortunately left MacWrite far behind, but as a lower-level processor there is still some life left in the program.

Most new text processors make a feature of mixing words and graphics, allowing text to 'run around' an illustration.

This effect can be obtained with MacWrite, by creating the text/illustration combination in MacPaint, and moving it over via the Clipboard. The principal point to watch in creating this blend is careful matching of type, to ensure that there are no unsightly gaps or duplications.

For this reason, it's best to leave adding the illustration until the text part of your document is complete, and to add new illustrations only after the text has been

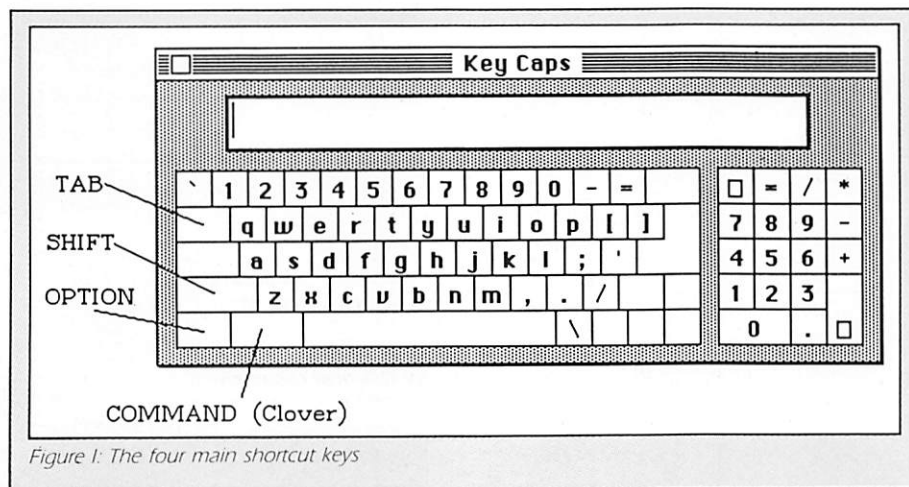


Figure 1: The four main shortcut keys

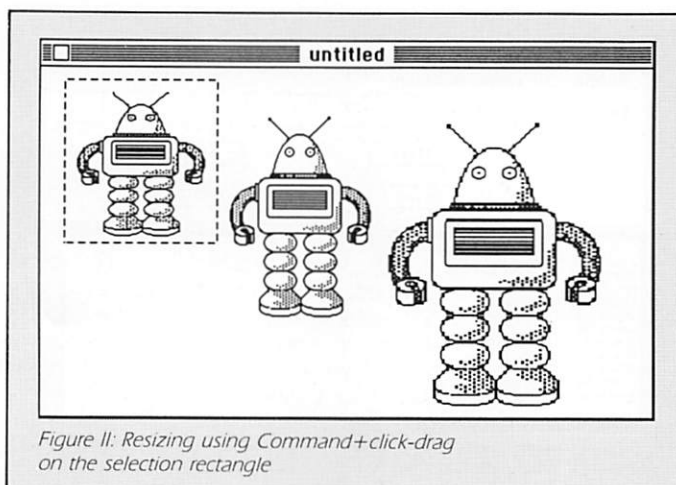


Figure II: Resizing using Command+click-drag on the selection rectangle

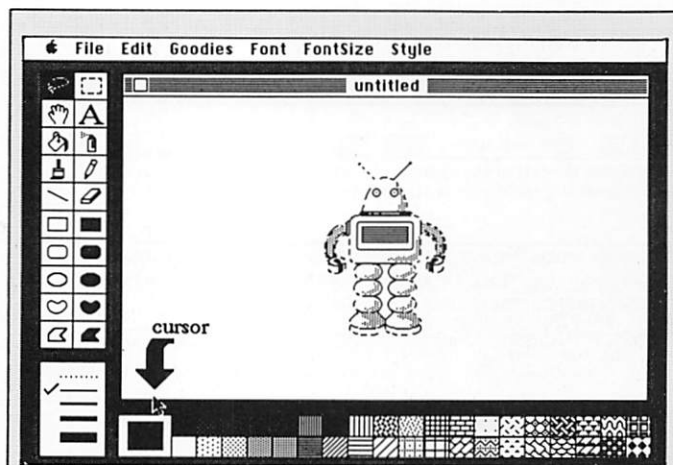


Figure IV: Moving a selected object from the bottom of MacPaint's window. The cursor has changed to an arrow, even though the selected object is nowhere near. Click-dragging will now move the object.

Goodies

✓Grid

FatBits ⌘F

Show Page ⌘S

Edit Pattern

Brush Shape

Brush Mirrors

Introduction

Short Cuts

Figure III: Selecting Grid will ensure a pattern remains undistorted

adjusted around earlier insertions.

Before I'm drowned in a chorus of reminders, I am aware of the major difficulty that Paint illustrations inserted into Write documents usually appear paler than the surrounding text when the document is printed by ImageWriter. This is because the special printing formula of MacPaint, which I mentioned earlier, obviously isn't present inside MacWrite.

However, the DA called FixPic, by Michael Casteel (see Figure VII) resolves the problem. Selecting this DA while your illustration is held on the Clipboard will automatically convert it to "high density" dots, so that it no longer stands out.

In using MacWrite for the entry of text, it can be useful to remember that letters or words deleted with the Backspace key can

be restored by Clover+Backspace. Characters deleted are stored in a 50-character buffer, which can not only restore text accidentally removed, but also be used to move text from one location to another.

Text and fonts

Selecting larger areas of text is done by click-dragging over it. Should you wish to select even larger areas, though, this can easily be done by clicking once at the start, then simply scrolling to the end and Shift-

clicking there.

I've sometimes been asked why page numbers in MacWrite don't appear in the same font as the rest of a document. The answer is actually straightforward – page numbers take their appearance from the font chosen *inside* the Header or Footer windows, when selected from the Format menu – and these will always be set to the default values. If you set a different font for your document, you will need to reset it inside your header and footer windows, too (see Figure VIII).

MacProject is an Apple program which is ▶

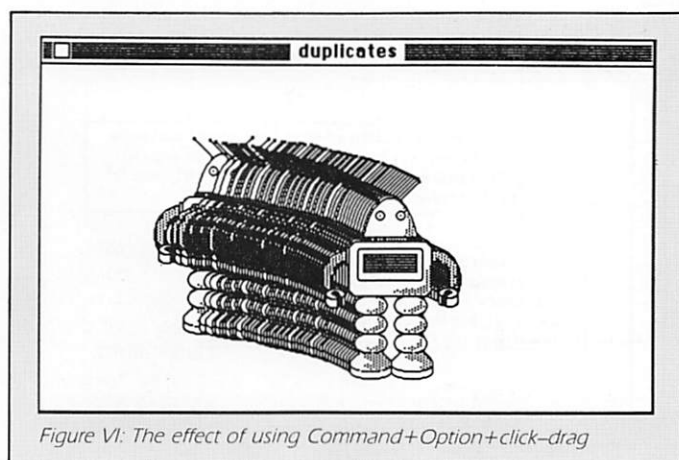


Figure VI: The effect of using Command+Option+click-drag

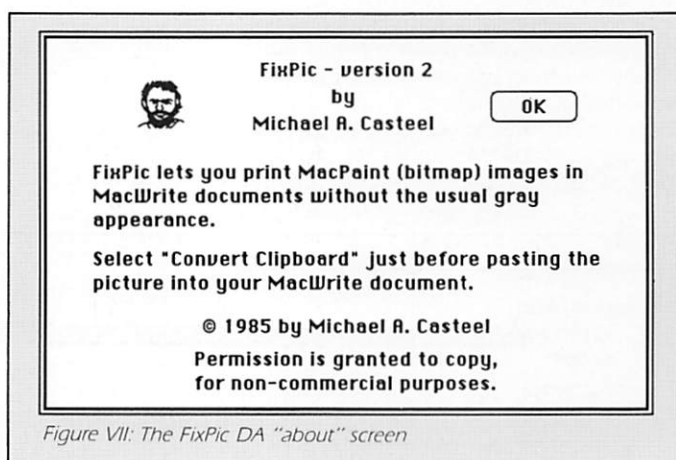


Figure VII: The FixPic DA "about" screen

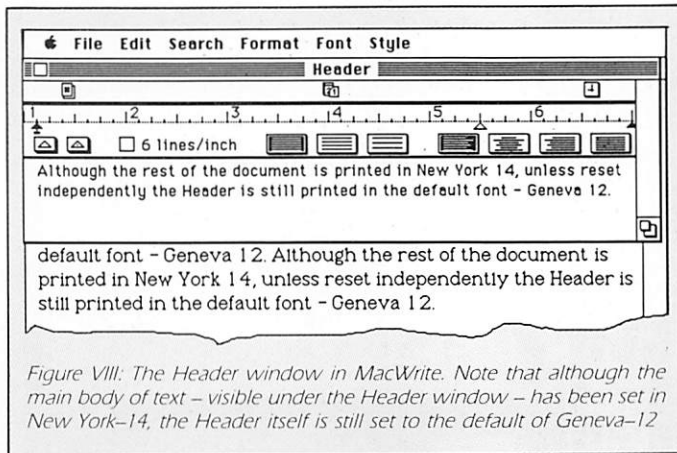


Figure VIII: The Header window in MacWrite. Note that although the main body of text – visible under the Header window – has been set in New York-14, the Header itself is still set to the default of Geneva-12

◁ perhaps not as widely known as it should be, but here are a couple of tips for it anyway!

Moving quickly from the Task Info window can be done by pressing the Tab key, which will present a Task Info window containing duration and resources for your new task – the first blank is automatically selected. Hitting Tab again moves the insertion point to the next blank, or to the first task, should you be in the last blank.

Dependency boxes

Adding a dependency box is easily done by drawing a dependency line from the centre of any existing task or milestone box *outward* to the right: When you release the mouse button, a new task box the same size as the original will be drawn automatically – the new box is dependent on the task from which you started the dependency line.

To simulate cursor key movements in MacTerminal, hold down the Option key and click in the position you would like the cursor to be: MacTerminal will then transmit the necessary key sequences to the mainframe computer.

Apple's Disk First Aid – supplied on new System/Finder discs – I've found really useful, particularly a month or so ago when my Mac had a period of ignoring some disks. As the program is almost totally automatic I had a problem finding a tip, although I eventually discovered that if you press Clover+S *after* selecting the disc to be repaired, additional information on the repair process is displayed (see Figure IX).

Font/DA Mover is a useful tool, too, and I've sorted out a couple of tips which may add to its usefulness. Keep in mind that although Font/DA Mover always displays Fonts when first started, holding down

Option when running the program will display DAs instead.

Perhaps the most profitable tip for this application, though, is to try holding down Option while clicking Open from within the program. This will display *all* files having resource forks – which in this case you can take to mean all files into which fonts and DAs may be installed.

With this tip, it is possible to install DAs which are specific to a particular application into the application itself, rather than having them always in your DA menu. Fonts may be chosen and installed in a similar way.

Holding down Option when closing a DA or font list will automatically eject that disc, while holding down the same key – Option – when leaving Font/DA Mover will eject all discs except the one with the current System/Finder.

MacDraw

Finally, some MacDraw shortcuts. Centring can be a frequent headache, but it's easier with these two tips: To centre an object – perhaps on a particular spot – first select and cut the object, click on the spot where you wish the centre to be, and paste. MacDraw will automatically centre the object into the position you have chosen. To

centre text in a box, Shift-Click to select both the box and the text, then go to the Arrange menu and choose Align Objects, with either L/R for horizontal or T/B for vertical centring (see Figure X).

To capitalise the first letter of every word in selected text, incidentally, try going to the Style menu and choosing Title.

Triple-clicking with the text tool will select a paragraph block of text, by the way – the only use of triple-click I found!

Still on text: To wrap pasted text within an area, create your rectangle and, *before* pasting text into it, type a "space" – or any key, actually. Then paste in your text, and MacDraw will wrap it exactly to the size of the rectangle (see Figure XI).

A last point. After drawing an object, it may be automatically redrawn on another location by simply holding down Clover, and clicking on the new location: This operation may be done several times. When Clover (and mouse button) are finally released, all the drawn objects will be automatically selected.

It's not really a tip, but I have found that, with MacDraw particularly, it pays to repeatedly save your work, just in case of trouble with the program.

I hope that these shortcuts will be of help: Do let me know if you would like more – perhaps on applications from outside Apple. □

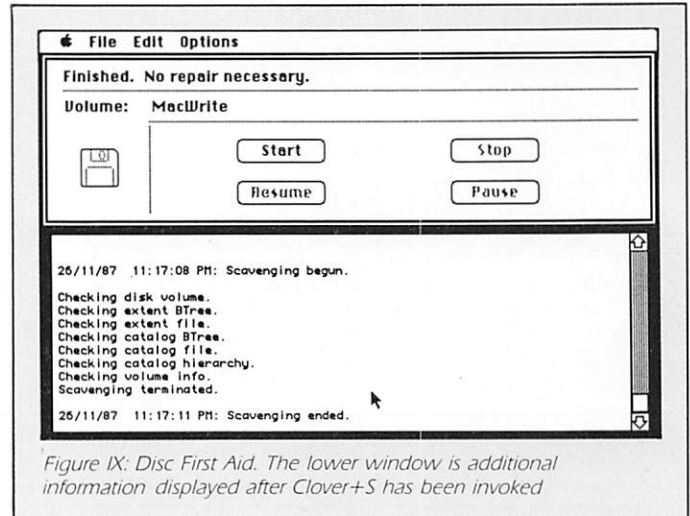


Figure IX: Disc First Aid. The lower window is additional information displayed after Clover+S has been invoked

Align Objects:

- ☐ Left Sides ☒ L/R Centers ☐ Right Sides
☐ Tops ☐ T/B Centers ☐ Bottoms

OK

Cancel

Figure X: Using Align Objects from the Arrange menu in order to centre text

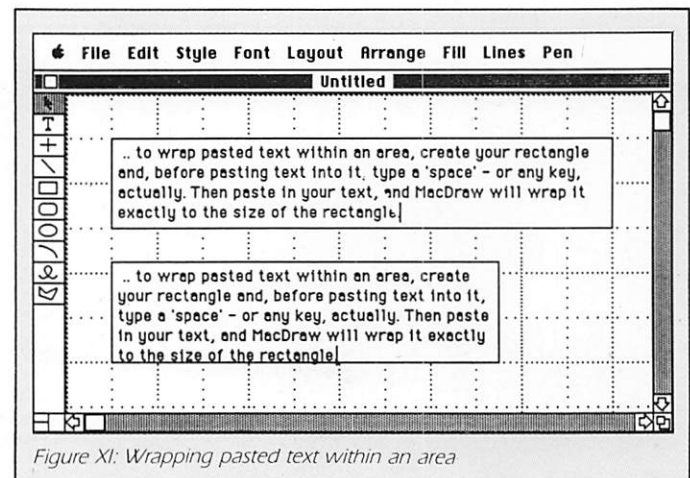


Figure XI: Wrapping pasted text within an area

Aide memoire for your Apple

WOULD you like to be able to switch on your Apple II and have your favourite programs ready to run within two seconds?

On a 512k Apple IIgs, AppleWorks 2.0, which automatically loads most of the program into the extra memory, takes 45 seconds to start up from floppy discs or 28 seconds from a 3.5in disc. But with Cirtech's PROMDisk Adaptor, you can have the AppleWorks main menu on screen within two seconds of switching on.

The PROMDisk Adaptor is a piggy-back board for Cirtech's PlusRAM-gs2 or gs8 cards which fit into the memory expansion slot of the Apple IIgs. (Reviewed in *Apple User*, September 1987). The PROMDisk Adaptor comes with at least 64k of low-power high-speed CMOS static ram which can be expanded up to 256k.

The board also has a small rechargeable nickel-cadmium battery which acts as a built-in power supply to the CMOS chips when the machine is switched off. While the machine is switched on, it automatically recharges the battery and supplies the power to the CMOS chips. Once fully charged, it can supply the full 256k with power for about two months.

Installation

Fitting the board is easy, though the manual has the usual warnings about discharging static electricity from your body before handling the board and, of course, switching the machine off before installing the card.

There are two ways of using the memory on the PROMDisk Adaptor: As a rom disc – which acts in much the same way as a ram disc – or as addressable memory, ranging from address \$F0/0000 to \$F3/FFFF. Few current programs make use of this range. For example, AppleWorks 2.0 does not use it as desktop memory.

To use the memory on the PROMDisk Adaptor as a rom disc, you must install the PROMDisk Driver. You need do this only

**Faster access and more
memory – Geoff Wood
looks at some recent
add-ons for the Apple II**

once, unless the PROMDisk is erased by disconnecting the battery.

The PROMDisk Driver is a program on the disc that comes with the PlusRAM-gs card. All you have to do is to boot up the disc, press P followed by 1 and then cold start the machine. You must then format the rom disc with Prodos or another suitable operating system.

You can then copy programs and files to the rom disc, up to the limit of the memory available. With AppleWorks 2.0 in the 256k of memory, there is still 70k available for other programs or files.

You can write-protect and write-enable the contents of the rom disc by using a toggle in the PROMDisk Driver program – some programs such as AppleWorks do not work if the disc is write protected.

Alternatively, you can enter the monitor from AppleSoft Basic with Call-151, then type F0/000C:01 to write-protect or F0/000C:00 to write-enable the rom disc. Write protection is limited to write-attempts through the smart port. If the program crashes, it may corrupt the contents of the rom disc.

When you install the PROMDisk Driver, all the memory on the PROMDisk Adaptor is automatically assigned to the rom disc. This is used by Prodos, Pascal 1.3 and Cirtech's CP/M Plus as an ordinary disc

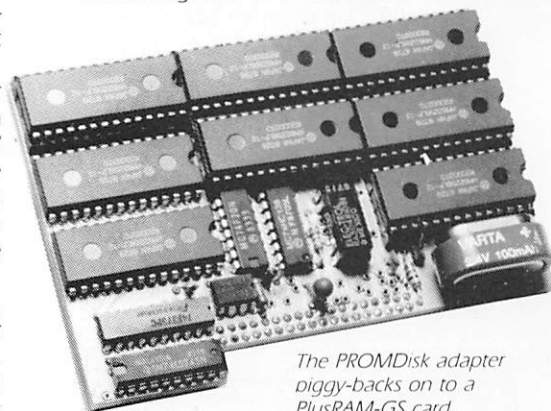
drive. You can use the same commands with the rom disc as you would with a disc drive or a ram disc.

The control panel program of the Apple IIgs normally assigns slot 5 as the smart port which acts as an interface for storage devices such as the Apple 3.5in and 5.25in drives, and the ram and the discs. You can use the Control Panel Program to choose which smart port device to start up from.

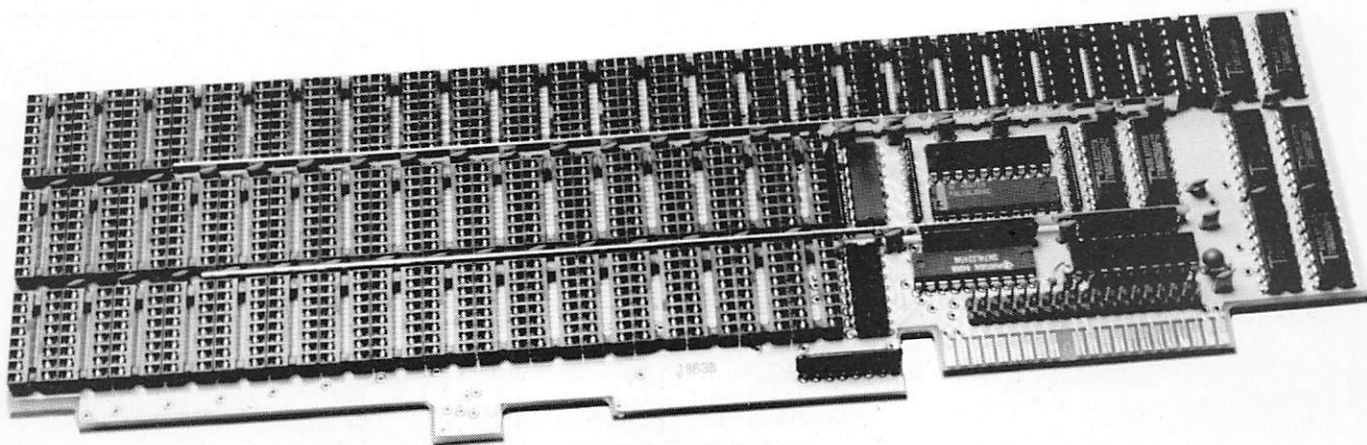
Depending on the configuration of your IIgs, the smart port assigns certain unit numbers to the devices connected to it. For example, if the rom disc is the start-up device, it will be unit 1. If you have also set a ram disc, this will be unit 2. The first 3.5in drive will be unit 3: Any other drives will be units 4 to 6.

If the ram disc is the start-up device, it will be unit 1 and the rom disc will be unit 2. If the 3.5in drive is the start-up device, it will be unit 1, the ram disc will be unit 2 and the rom disc will be unit 3.

Translating the unit numbers into slot ▶



The PROMDisk adapter piggy-backs on to a PlusRAM-GS card



◁ and drive numbers can be tricky until you learn the rules. Unit 1 appears as slot 5 drive 1, unit 2 as slot 5 drive 2, units 3 and 4 as slot 2 drives 1 and 2.

If you have 5.25in drives chained to the 3.5in ones, these will appear as slot 6 drives 1 and 2 – even if you have only one 5.25in drive, drive 2 will be listed. In addition, the Apple Filer program will show /RAM in slot 3 drive 2.

Pascal 1.3 and Prodos 1 were designed for two disc drives so they only use smart port units 1 and 2. Prodos 8 and 16 can use the first four smart port units and any 5.25in drives chained to the 3.5in drives. Cirtech's CP/M Plus lets you use up to 8 units connected to the smart port. To use Dos 3.3 or Pascal 1.2 with the smart port, you need Cirtech's UniMate program.

At a price of £88, the 64k PROMDisk Adaptor is a useful device, but you need at least 185k to store Prodos and AppleWorks. Extra CMOS static ram costs £24 per 64k so the 256k PROMDisk Adaptor costs £160. If you wanted to store only Prodos and AppleWorks, a 192k PROMDisk Adaptor would be required.

The board sits on the left front of the PlusRAM-gs card so it prevents you from using a long card such as the Cirtech PlusRAM card in slot 7 of your IIs. In practice, though, you are unlikely to need both types of memory card, especially if you have a PlusRAM-gs8 card. There is sufficient room to insert a smaller card such as the Cirtech Z80 for CP/M Plus.

The main limitation of the PROMDisk adaptor, apart from the maximum memory size of 256k, is that you can't use it in an Apple IIe or II Plus.

A card which can be used in the IIe and II Plus, as well as the IIs, is Applied Engineering's RamFactor ram card (*Apple User*, January 1987) for which an independent power supply is available.

However, the RamFactor card uses dynamic ram chips, not low-power CMOS

chips, so the power supply is in a box outside the computer and it must be left switched on when the computer is off.

In the event of a power failure, a rechargeable battery in the power supply retains the memory in the ram chips for up to five hours.

The RamFactor power supply is intended mainly as a precaution against power cuts – which occur quite frequently in some parts of the U.S.A. – and is hardly vital in most parts of Britain

French card

Apple computers are very popular in France. So much so that a company called Thot Informatique has produced a memory card called the Speedisk. It is fitted with either 384k or 1Mb of CMOS chips and a small rechargeable battery. The cards can be used in an Apple II Plus, IIe or IIs. I tested the 1Mb version and was very impressed

Unlike the Cirtech PROMDisk Adaptor, which can behave as a rom disc, the Speedisk behaves as extra memory which can be used as a ram disc. After fitting the card in the computer, you should format it with Prodos and copy your programs and files on to the card.

If you fit the card in slot 7 of your Apple IIe or II Plus, the computer will start up from the ram disc. In an Apple IIs, you must use the control panel to set the start-up slot.

There was no mention of Pascal in the leaflet that came with the card, but I tried out Pascal 1.3 and had no problems. There is a patch available to permit use of Dos 3.3 with UniDos.

The 384k card is about the same size as an Apple Memory Expansion card but the 1Mb version has a piggy-back board almost the same size. This means that, in some slots, the piggy back card may be almost

touching a card in the slot to its right.

For example, in slot 7 of an Apple IIs the piggy back card seemed dangerously close to the Apple IIs Memory Expansion card. And if you fit it in any other slot, you may lose some other function such as the mouse.

I loaded Prodos, AppleWorks, Apple Writer, Sensible Speller and SuperCalc 3a into the card, leaving 274k for further programs. Using Allan Bird's version of Prodos 8 though, which, when you quit a program, displays a list of the system files on the disc – I could switch from one program to another in a few seconds.

And with the Sensible Speller dictionaries in the ram disc, it was easy to check all my word processing whereas, with the program on discs, I tend to use it only for important files.

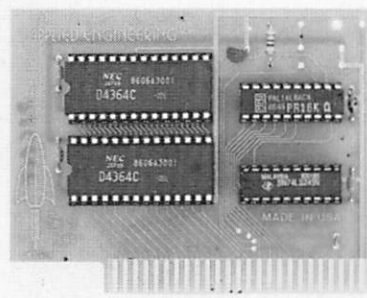
The Speedisk card is ideal for large programs that seem to take ages to boot. For example, Paintworks Plus needs over 400k of disc space and it takes more than a minute and a half from the time you switch on the machine to the time you can start to draw or load a picture. With the program and Prodos 16 in the Speedisk, it took less than 30 seconds.

Always on call

If you want instant programs for your Apple IIe, II+, or IIs, this is the card for you. It's much faster than any hard disc and it means that you can switch off your computer, move it to another site, switch on and instantly resume work where you left off. Also, you can remove the card from your computer and plug it into another without losing the contents of the memory.

Of course, if you don't move your computer about and if you have very few power cuts, you could leave your machine switched on permanently. The extra cost of electricity would be much less than the cost of battery backed rom or ram, but you would not have the other advantages of these devices.

AppleUpdate



THE new battery back-up for Ram Factor, RamCharger enables one or two Ram Factor cards to retain their memory

contents even when the computer has been switched off. The user can then directly "cold-boot" from the RamFactor so as to be up and running in two seconds from power on.

From the same supplier comes Pocket-Rockets, a 16k language card with four chips for the Apple II+.

Product: RamCharger, Pocket Rocket
Price: £ , £79
Supplier: Bidmuthin, PO Box 264, Harrow, Middlesex HA3 9AY.
Tel: 01-907 8516

Product: PROMDisk Adaptor
Price: £88 (64k); £160 (256k)
Supplier: Cirtech (UK), Currie Road Industrial Estate, Galashiels, Selkirkshire TD1 2BP.
Tel: 0896 57790

Product: RamFactor Card (1Mb)
Price: £319
Product: Thot Speedisk
Price: £339 (384k), £499 (1Mb)
Product: Ramfactor Power Supply
Price: £179
Supplier: Bidmuthin Technologies, Brent House, 214 Kenton Road, Harrow, Middlesex, HA3 8BT.
Tel: 01-907 8516

Gore galore in the Netherworld

EVERY Apple owner must by now have trodden the slippery slope of adventures at least once, whether a straight text effort full of tortuous puzzles or a sword and sorcery offering of epic proportions. Certainly there are enough around to choose from – the problem is finding one that's worth the effort.

SSI is stepping into the arena for a second time with *Gemstone Healer*, the sequel to *Gemstone Warrior*. I can't really believe that disc-bound heroes can attract a cult following, but presumably the company decided that something about the mix was right.

Packaging, as ever with SSI, is glossy and sturdy, and the product is uncluttered with gimmicks: Disc, manual and that's your lot. Still, what else do you need? In fact the manual is a skeletal 15 pages, and once you've subtracted the instructions for non-Apple owners, a not particularly well drawn map and the obligatory scene-setting in curly lettering, there isn't a great deal left to go at.

Speaking of setting the scene, your aim in life is get hold of the healing tool which will restore the Gemstone of the title to working status – yes, I know you repaired it in *Gemstone Warrior*, but sticking the bits together wasn't enough.

Needless to say, the tool is not available from all leading suppliers, but is located in "the nightmare that is the Netherworld", guarded by assorted demons, ghoulies and things that go bump in the night. Also needless to say, you don't get the chance to turn the assignment down – it's *Brave Healer's* turn in the barrel again.

Snide comments and the irrelevancies of plot aside, the essence of any adventure is playability, and *Gemstone Healer* scores highly here. The Netherworld is not the most straightforward of places, but it can be approached on three levels – Beginner's, Normal and Kamikaze. The three modes are similar, but the more advanced ones provide faster, hungrier monsters and less reliable spells.

As if that weren't enough, the configuration of the Netherworld keeps changing. The maze which comprises the playing area is randomly generated at the start of a session, although you have the option of calling up an "old" pattern.

Whichever level you choose, mapping is essential. That said, I hope you fare better than I did – I'm not exactly in the Prince Henry the Navigator class. However conscientiously I drew my squares and charted my graph paper, I still managed to get lost all too frequently, and generally managed to charge off on a course that took me off the edge of the paper. To add to my problems, the maze contains hidden doors

Product: Gemstone Healer
Price: £19.99
Requirements: Apple II with Applesoft rom, II+, IIe, IIc
Supplier: SSI/ US Gold, Unit 2 + 3, Holford Way, Holford, Birmingham B6 7AY.
Tel: 021-350 3388

which can only be found by the suck-it-and-see method.

But negotiating the maze successfully is only one of parts to *Healer*. You've also got a constant procession of monsters to dispose of or avoid, a succession of cryptic messages to decipher and the eventual healing to accomplish. This, incidentally, is why you keep finding hammers and chisels dotted around the landscape.

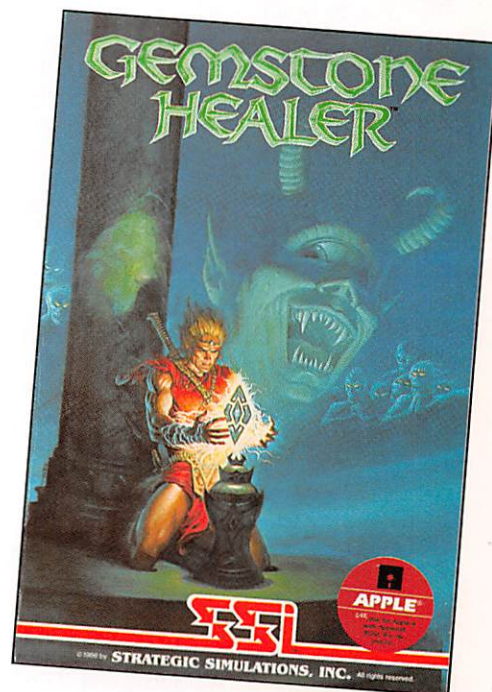
Control is by joystick or keyboard: I opted for the latter for more precise steering, but I did lose quite a few lives getting used to the spread of keys – a fumble or a moment of hesitation can be fatal. I also opted for the keyboard because my joystick seemed only to function half the time – either that or I'd misread the instructions.

To give a flavour of the play, you'll start in an empty room, having created the maze of your choice. This will give you chance to get used to handling the keys, and time spent here is not wasted. Once you're confident of your skills, and resigned to the fact that you're wearing moonboots and a visor and carrying a crossbow, head for the exit.

The odds are that the nasties will immediately home in – bloodsucking terrors, ghosts, skeletons or whatever. Most can be despatched by your trusty crossbow, eventually, though it does seem an odd choice of weapon for the task in hand. You do get a chance to swing a sword occasionally, but as only running attacks work you'll probably be wiped as you charge in. I was. Frequently.

Long range destruction is the order of the day, as all the baddies will sap your life force in close order combat and one, the contagious shambler, leaves you with a socially undesirable disease which will eventually be the death of you. Or as the manual cheerfully phrases it "if you do not have the cure, you may find yourself in trouble": Has aids finally made it to adventure land?

Survive this onslaught and you'll find treasure, weapons, spells and other desirables lying around in chests and coffins (though beware – coffins tend to have occupants). You'll also find that dead monsters leave the same goodies in their wake, so it's always worthwhile to inspect a corpse – though how a giant amoeba manages to hide a hammer and a couple



of quivers of crossbow bolts about its person beats me.

You won't be able to carry everything you find, so learn to be selective. Extra lives (to a maximum of the traditional three) are worth having, but cluttering yourself up with magic wands that freeze your opponents isn't exactly essential.

In addition to your physical weapons – always displayed to the right of the screen (the scrolling map occupies most of the remainder) – you have access to a variety of spells and potions. So, anyone with an urge to disguise himself as a skeleton, turn invisible or obliterate all his opponents in one fell swoop is well catered for.

Be warned though: The magic healing potion, which restores active life, is very easily confused with the vial of poison in the heat of the moment. One nice touch is the symbol used for "an ancient illusion" – a floppy disc: I always thought there had to be something else you could do with them.

As you'd expect, the game supports the usual functions of save and resume, and pause. Sound is very limited, but useful and not annoying – though it can be turned off – and the graphics are more than adequate. My only complaint is that the manual could have been a little more helpful, but trial and error resolves most queries.

In several (real time) days of play I amassed a great deal of treasure, explored acres of maze and annihilated baddies in their droves – and got no nearer to a solution. *Gemstone Healer* is simple, appealing – and totally addictive.

John Hickman ▾

Listen to the rebel yell . . .

◁ ULYSSES S. Grant was one of the more memorable generals thrown up by the American Civil War, and one of the more competent. This competence, however, wasn't particularly in evidence at the Battle of Shiloh, a bloody two-day affair that claimed 25,000 lives and had the dubious distinction of being the greatest battle fought on the American continent.

SSI has chosen Shiloh as a complementary title to Gettysburg, and has used the same elaborate – but very workable – play system. All units that took part in the action are represented, down to brigade level, either by icon or figure, and the scrolling map which fills the bulk of the screen is clearly drawn and sensibly shaded, although a colour monitor certainly helps.

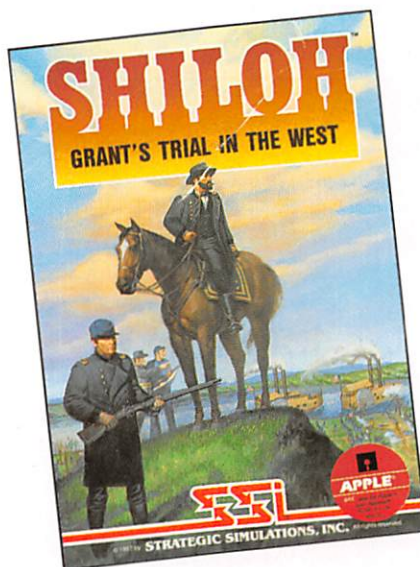
A major drawback with many simulations is that battles can only go one way if the players are halfway competent: There's not really too much fun playing the American role in a recreation of the Alamo, however faithfully it's rendered, and with the benefit of 20-20 hindsight, how many gamers would launch the Light Brigade down the proverbial valley?

Shiloh (here subtitled Grant's Trial in the West) escapes this criticism. The battle is a natural choice for a wargame, being a self-contained affair – more or less a campaign in itself – and one which can go either way. And the geography of the area involved allows the battle to be confined to reasonable limits. About the only thing it can't cater for is human irrationality – one unit in the battle proper continued the attack after taking 70 per cent casualties.

To set the scene, Grant, with an army of 45,000 supported by two gunboats, is moving down the Tennessee valley with the intention of securing the state. Ranged against him is Johnston, one of the South's best generals, with considerably less men and recent Confederate defeats fresh in his mind. As Grant has another 25,000 men moving to join him, Johnston attacks before the odds are too overwhelming.

Historically, Johnston almost got away with it, catching Grant unawares and almost pushing him into the river. Grant, however, held on: Johnston was killed, Federal reinforcements arrived in time and both sides retired to lick their wounds. Technically a draw, Shiloh proved to be the turning point in the battle for control of the west.

In the game – against the computer or a human opponent – things can go very differently. Three levels of varying complexity are offered, and main menu options allow a considerable number of permutations on these – varying ammunition supply, for



example, and arrival of Federal reinforcements.

Control can be either from keyboard or joystick, and there are options to fine-tune the latter for maximum responsiveness. However, given that this is not in any sense a shoot-'em-up type game, speed is not of the essence. With an estimated minimum playing time of 10 hours, it's hardly necessary to hurl units around.

Graphics are competent, movement smooth and sound thankfully optional: There's a limit to the number of times you want to hear a shell "whistle" past or a volley of rifle fire rattle out. The "wait" messages between turns and some phases are spartan, but that's scarcely a major criticism, and at least disc swapping is kept to a minimum.

At the beginner's level – and you'd be well advised to get some practice in here, at least – you start with all units in the locations they held on the morning of the battle. The battlefield is displayed on-screen, but SSI has also thoughtfully provided the same map on paper as a quick

Punster always has a word for it

CURIOUS title and even curiuser game. Although Nord and Bert is from Infocom, you could hardly call it an adventure. Infocom quite rightly describes it as "interactive short stories" as opposed to the usual "interactive fiction".

The game is pure text right enough, but instead of one complete adventure, what we have here is eight vignettes. The link between them is that the stories are all set in the strange town of Punster and each tale centres around a particular usage of the English language.

The citizens of Punster have recently been victimised by a series of odd happenings which have ground business to a halt and played havoc with everyday life. The plague, if such it can be called, seems to be focussed around an area of the English language.

The effects are widespread and bizarre. For instance, objects and even citizens have been transformed overnight into weird mutations of their former selves. In other cases, what were once simple actions to perform now require the use of old time-worn phrases to accomplish them.

Your task is to unravel each tale and get the town of Punster back to some semblance of normality. With one exception, you can play the stories in any order, the exception being the one called Meet The Mayor – you will only be allowed to play this when you have completed all the

others. The program tests your knowledge of the other stories before it will let you into this final tale.

One unusual feature of this game is that it has built-in help. Typing HINT brings up a list of topics for that tale and by moving a pointer to the desired topic, you can gain access to one or more hints on that subject.

Typing HINTS OFF at the beginning of the game helps avoid temptation since the program will not then allow you to access the hints for the rest of that session.

Another aspect unusual for Infocom games is that no mapping is required. Each tale is self contained and includes only a handful of locations, all of which are stated at the top of the screen. Typing the name of the location takes you straight there.

Each tale is really nothing more than a connected series of puzzles, all solved by a particular use of English. Points are scored for each solution – the number of points possible varies from tale to tale.

Now to the tales themselves. In Shopping Bizarre, you first find yourself in a dessert aisle (note the spelling). Your way is blocked by a broad-shouldered, dark brown, adult moose chewing brown cud.

Type in the word MOUSSE and "There's a sudden belching poof of smoke and the odour of burnt chocolate". What you now see before you is a chocolate mousse and you have scored one point.

Elsewhere in the same tale, you'll come

reference guide. To make life easier still, it's possible to toggle between overview and close up at any time.

Victory is achieved by gaining and holding certain key positions, and by inflicting casualties. Simple menus allow you to move units, and have them fire, attack or both. Decisions made and orders given, the computer resolves the action, calculates casualties, and implements subsequent retreats and advances.

This all takes time, with some 20 units per side to agonise over, but the effort is worth it: Factors such as morale, ammunition supply, casualties suffered and so on are all taken into account, and actions are not determined by a simple throw of the dice.

SSI has done an excellent job of making the simulation as realistic as possible, and you very soon appreciate that careless orders cost lives. Shiloh is not a game for the gung-ho merchants used to space invaders – pressing on regardless of casualties is suicidal, resulting in enforced retreats at best and uncontrolled routs at worst.

And the fact that many enemy units can be concealed until you bump into them can make life a little too interesting.

The battle is fought over 15 turns – each consisting of artillery fire, rifle fire, movement, melee and more movement – and at the beginning of each a status screen displays victory points gained and casualties lost. The victory conditions are weighted to favour the aggressive, organised player, and sound tactics will usually win the day.

At the intermediate and advanced levels the game is considerably more sophisticated, taking leadership and command control into account and refining the detail of the sequence of play. For the truly dedicated, numerous tables in the manual supply facts, figures and probabilities and these repay careful study.

Shiloh is not a game to fill an idle half hour: It is a very well crafted wargame simulation that will quite possibly spread over several evenings, and I suspect many wargamers will use the game as a basis for tabletop battling.

And as such it will probably have a very

limited appeal. The pack blurbs that you'll enjoy Shiloh "regardless of wargaming experience", but the manual is less than helpful to the beginner – a demo game, explained step-by-step in writing, would be invaluable.

The manual is packed with detail, charts, maps and tips – but it does seem to be aimed more at the wargamer than the game player: It's not patronising, but it does assume rather too much.

As historical simulations go, Shiloh is one of the best on the market, and the mechanics of play are superb. Wargamers should make a beeline for it: Non-wargamers should think very seriously about broadening their experience.

Peter Walls

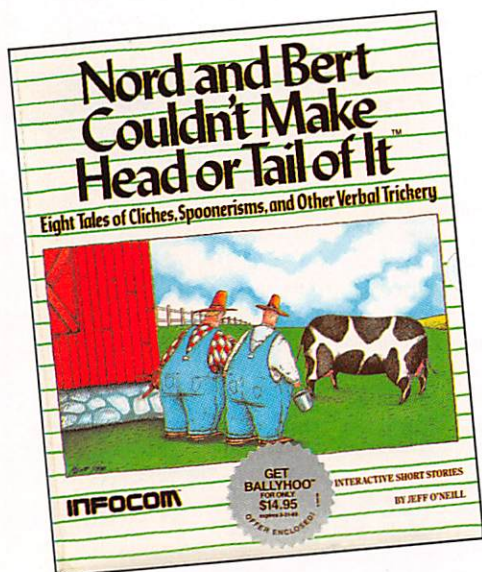
Product: Shiloh

Price: £19.99

Requirements: Apple II with Applesoft rom, II+, IIe, IIc

Supplier: SSI/ US Gold, Unit 2 + 3, Holford Way, Holford, Birmingham B6 7AY.

Tel: 021-350 3388



across such sights as a large block of stationary (be careful, that's the way it's deliberately spelt in Nord and Bert) and a bear clause in the stationery section. Nearby is a man in a dark tuxedo taking huge bites out of packets of cereals. Strange is the right word for this game.

In Buy The Farm, you'll wander around a barn, barnyard, road, stable, loft, field and market trying to come to grips with the many puzzles there. For instance, a tired old dog sits in the road. You'll need to get him to liven up a bit – well, you know what they say about teaching ancient canines. Clichés are the key to all the problems in this little number.

Play Jacks sets you down in a one-room house confronted by a really mystifying contraption. This thing is sort of square, sort of longish, with a fluffy ball at one end. Its surface is made of thick cloth and it has a movable strip of metal. A hand crank, a water faucet and an electrical switch are on different sides. Completing the ensemble is a pair of sleeves.

What is it? Easy – a jack of all traits. Think of all the words beginning with JAC that you can and you'll be on your way to solving Play Jacks.

Eat Your Words finds you in the Teapot Cafe where the waitress is doing her level best to look busy. This vignette revolves around plays on words connected with food.

Looking at the food the unhelpful waitress brings you reveals that it is "Just desserts". Giving these to the waitress causes her to perk up, thinking she is about to get a big tip. When she sees what your offer really is she frowns and brings you a pie (humble pie, of course). Eat it and there's another point scored.

My favourite is Act The Part. This tale places you as one of the stars of a fifties sitcom. It's full of such dreadfully corny stuff like knock, knock humour, pratfalls and inane practical jokes. There's even a studio audience who giggle in anticipation and go into hysterics at each development.

Shake A Tower is all about spoonerisms. You know, the sort of transposition of letters made famous by the good Dr Spooner – "You have tasted a worm's work", "Leave on the town drain", and "We will now sing Kinkering Kongs".

Manor of Speaking is a guest house whose attic is below the first floor and whose rooms are possessed by the warped

personalities of former occupants. One of the rooms is called The Doldrums, a massive, still-aired chamber whose centre is a vast wasteland blending into a grassy plain that spills over a chasm.

Above the cliff hangs a shapeless cloud through which a line of sheep are jumping in slow motion. Repeat a word or command in this room and the chasm yawns. As you can see, not much is happening in the Doldrums, but you can always count sheep or watch the grass growing.

Nord and Bert comes with a book of delightful and original Kevin Pope colour cartoons which illustrate the various types of wordplay used in the stories. Jeff O'Neill, author of Ballyhoo, wrote the game.

Nord and Bert is a unique game and Infocom is to be congratulated for taking this innovative step. The game offers intelligent stimulation and the beauty of it is that each tale can be completed in one sitting, making it ideal for an evening's play with family or friends.

Many adventurers will enjoy Nord and Bert for the puzzles even though the game lacks the atmosphere and escapism normally craved by such players.

And because of its zaniness, originality, mental stimulation and built-in optional assistance, Nord and Bert should appeal to a wider audience than that catered for by Infocom's usual games.

Brillig

Program: Nord and Bert Couldn't Make Head or Tail of It.

Price: £29.99

Supplier: Infocom/Activision, 23 Pond Street, Hampstead, London NW3 2PN.

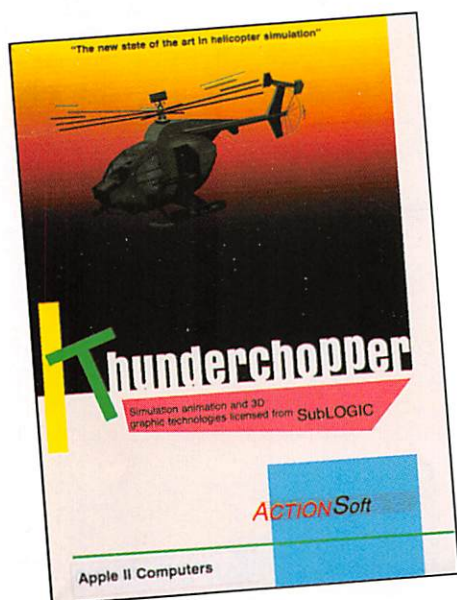
Tel: 01-431 1101

Flying high . . . it's good, clean, lethal fun

◁ IF you thought Sublogic's graphics in Flight Simulator were great, you'll love them in Thunderchopper. If not, you'll at least know what visuals to expect from this package, a helicopter simulation from ActionSoft.

Though not as complicated as Flight Simulator, Thunderchopper demands practice to acquire the necessary skills in what is probably as close as an Apple II gets to the real thing.

Using a joystick, I spent considerable time on the practice circuit. Flying wasn't so bad – it was just that I needed a new



helicopter every time I landed.

Suspecting a faulty joystick, I reluctantly resorted to the keyboard. I improved my performance within minutes and was soon able to complete the course, earning promotion from Pilot to Instructor and later to Commander. However, a crash on my first combat mission landed me back in school.

The program offers five different games – or missions – in addition to a demo mode showing Thunderchopper on various combat sorties under different conditions. The lamentable lack of a landing demonstration surely contributed to my collection of severely bent helicopters.

The most important mission is Flight Training. You sit Skyfox-style in a transparent bubble in front of an initially confusing instrument panel and attempt to fly following a black line over green terrain. You are expected to avoid contact with mountains and to land on the helipads appearing at spaced intervals. Your performance is evaluated and, if you were good enough – you don't have to be perfect – you may be promoted.

Your onboard computer periodically

Product: Thunderchopper
Price: \$29.95
Requirements: Apple II with 64k
Supplier: ActionSoft, 201 West Springfield
Avenue, Suite 711, Champaign, IL 61820
USA.
Tel: 0101 217 398-8388

feeds you information, but don't take it too literally. When told to decrease altitude, I dutifully obeyed expecting the instruction to change as I descended: It didn't. The result was another buckled helicopter.

The next mission is Rescue Alert, with you searching for downed pilots, assisted by your onboard computer, radar and said pilots lobbing flares in your direction. Landing near the site of a crash is charitably deemed a rescue and the grateful pilot climbs aboard. Thunderchopper must be deceptively roomy, as I had several pilots aboard when I carelessly crashed at high speed.

In Combat Alert, the third mission (not to be tackled until you're confident at the controls) the craft is armed with a spiteful array of weaponry which will allow you to take out anything up to and including a tank – sundry rockets, missiles and a machine gun. All of which can come in handy as you are quite likely to get shot at from the ground and in the air.

Your computer tells you when damage has occurred, and pressing the ? key reveals its extent: More to the point, you have the chance to return to base for repairs if necessary – an improvement on the usual "three lives and you're dead" routine.

Combat mode is not for the trigger-happy – choppers don't carry unlimited ammunition, television epics notwithstanding. As you'll score points according to how efficiently you use your firepower as well as how many targets you destroy, it's worth bearing in mind the manual's tactful warning that machine guns don't do a lot of damage to bridges.

A fourth mission, Armed Escort, is a variation on the theme with you shepherding troops and light vehicles home through a guerilla-infested valley.

And if you've still got the energy, you can try your hand at Rescue at Sea, retrieving water-logged survivors from an ongoing naval battle. A combination of the earlier Rescue and Combat modes, this particular set piece will test all your skills. Incidentally, I learned the hard way that helicopters generally come off second best when pitted against battleships.

Thunderchopper is supplied on both 5.25in and 3.5in disc, and the neat 64-page handbook is informative and interesting, giving full game instructions but also explaining the principles of real helicopter flight and control. It is a mite heavyhanded at times – "If a pilot is on the far side of a mountain he won't be able to see you" – but generally it's clear and helpful.

Hours of entertainment here for everybody – just fly around honing your skills or get a kick out of using them to save lives. For us armchair warriors, there's plenty of shooting and blowing things up – all good, clean, lethal fun. □

Lew Norris

Gnome Ranger heads for the Mac

GNOME Ranger is still with us, or rather with us again. The Apple II version was reviewed in last month's issue of Apple User, and now the game has been released for the Mac.

The heroine of the piece is Ingrid the gnome, an essentially well-meaning young lady whose friends, relations and neighbours have dumped her a long way from home.

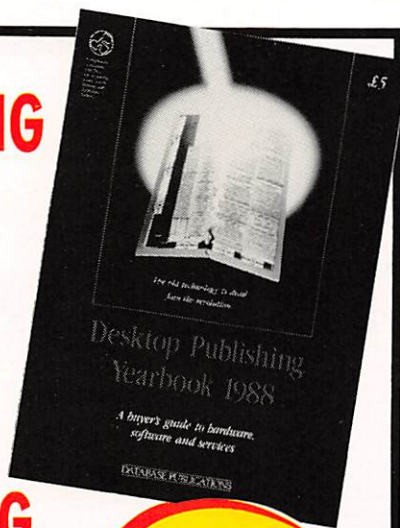
Your mission, should you decide to accept it, is to steer Ingrid back to the reluctant bosom of her family, guiding her past a variety

of dangers, puzzles and so on.

The Mac version includes the graphics sadly missing on the Apple II conversion, and if you can tolerate the game's trademark – all words beginning with N are spelled with GN, as in go gnorth young man – they're well worth a look.

Product: Gnome Ranger
Price: £14.94(Mac), £9.95(Apple II)
Supplier: Level 9, PO Box 39, Weston-Super-
Mare, Avon BS24 9UR.
Tel: 0934 814450

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**OVERSEAS ORDERS
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Taking TimeOut

THE move to interrupt-driven hardware has prompted the production of pop-up programs in almost every microcomputer system in common use. They cover spelling checkers, thesauruses, calculators, programming aids, clocks and calendars. In fact if you can think of a use for one, I'm willing to bet you can go and buy a version right now.

On the Macintosh and under Prodos 16 on the IIGs they usually take the form of Desk Accessories, but life is not necessarily interrupt-driven under Prodos 8 and pop-ups only appear within certain applications.

In fact, pop-ups really only appear within AppleWorks, which probably says something about the tremendous popularity of that program. It also perhaps suggests that there is a need for adding to or improving certain aspects of it.

To date we have been offered AutoWorks, MegaWorks, MacroWorks, various desktop expanders and the Pinpoint series of accessories.

Compatibility

Now, from the Beagle Brothers, comes an integrated set of pop-ups, under the collective title of TimeOut. The set is promised to be compatible with earlier pop-ups but this is almost impossible to check, given the tremendous number of combinations.

So I have, deliberately, only installed TimeOut on an otherwise unadorned copy of AppleWorks version 2. By the way, TimeOut only works with version 2 and it

Lew Norris tests a new generation of AppleWorks add-ons

has to be the USA version – fortunately or unfortunately, depending on how you look at it, we in the UK have the USA version and I guess that other English speaking countries do too.

There is a whole range of TimeOut pop-ups. To use them you do a once-and-for-all installation of TimeOut on a copy of the AppleWorks startup disc (you can re-install if you want) and copy to it – or to another, named disc – the pop-ups you require.

Then, at any time within AppleWorks, the key combination Open Apple+Escape will bring up the master menu shown in Figure 1 in much the same way as Open Apple+O brings up a menu of the desktop files.

Menu selections are made exactly as in AppleWorks and once made the pop-up will load from disc and run. Or it will have been loaded from disc at startup and have stayed memory resident – if so configured – and therefore is more quickly accessed although startup time is longer.

The pop-up utilities presently available cover file-handling, macros, data conversion, multiple font printing, graphing, spelling and sideways printing of spreadsheets. They integrate nicely at the software, tutorial and manual level, but there are one or two niggles.

I decided to first install the FileMaster (version 1.0), believing that with it I could

move the other files around from within AppleWorks. And indeed, I could, but – it has to be said – not safely.

Frankly, the FileMaster is a good idea, but it could be better implemented and it is not safe. It will lose the ends of files under certain circumstances and several of the files on the TimeOut discs will not copy correctly. A good example is the Beagle Brothers' picture from the SuperFonts disc which changes from 9k to 5k in the process.

Inconsistent exits

The lesser niggles I have about FileMaster are first its exit mode to AppleWorks which is inconsistent with the AppleWorks and the other pop-ups. After all, anyone familiar with AppleWorks would expect to press Escape – here, you have to exit via the menu.

Second, there is no way of changing a data disc from within FileMaster. I found myself frequently having to move back to the Other Utilities option of AppleWorks in order to do so and then having to re-enter FileMaster. This may be due to my inability to remember the exact pathways to files, but I'm sure that I'm not alone in this.

It would be better to dispense with the ability of listing files on the current disc (after all, this is in AppleWorks) and instead make it possible to change discs in a sensible way. Curiously, when copying files, source and destination selection is much better. Why not make it a general option?

I cannot recommend FileMaster – perhaps in version 2 the bugs and niggles will have been ironed out. FileMaster nearly put me off TimeOut altogether because it gave me such trouble in understanding why the other pop-ups weren't working. As it turned out, this would have been a pity because they are generally much better. Luckily I turned to Copy II plus, spotted what was wrong and started out again.

Next I tried SuperFonts (version 1.0), which allows you to print from the word processor, in a variety of fonts, sizes and styles, to a range of printers. The fonts are those from the Mac and Prodos 16 and the discs with the package contain Courier, Helvetica, Times, Geneva, New York and Symbol in sizes from 9 to 24, with others such as Los Angeles, Chicago, Monaco, London, San Francisco, and Mobile in a more restricted range.

There may be a slight problem here. All

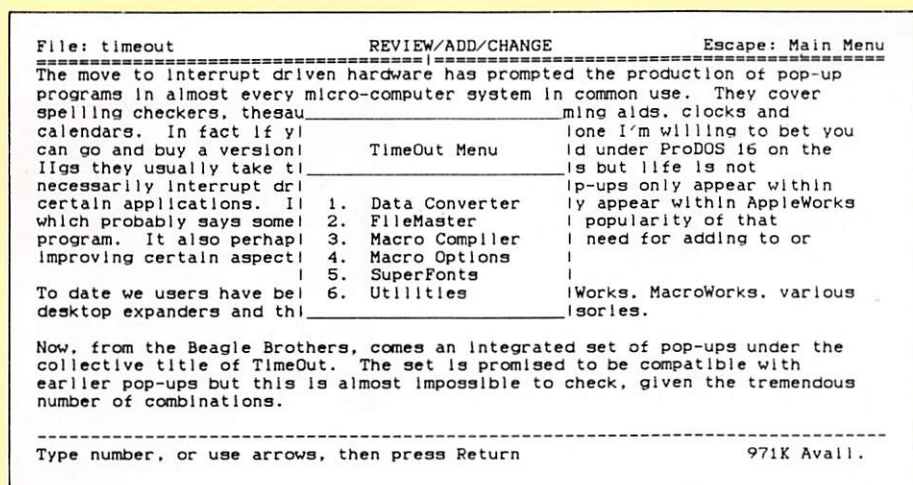


Figure 1: The master menu

the TimeOut packages contain two unprotected discs. One is a single or double sided 5.25in and the other is a 3.5in duplicate. However, in this case there are more fonts on the 3.5in than on the 5.25in. So if you only have 5.25in drives you will have to find someone (your dealer?) who will copy the extra fonts to your format.

SuperFonts supports Apple, C-Itoh, Epson, Integral Data Systems, Mannesmann Tally, NEC, Okidata, Panasonic and Star printers among others and Apple Interface cards and ports along with CCS, Dimpling, Epson, Fingerprint, Grappler, Microtek, Mountain Computer, Pkaso, SSM, Versacard and Videx interface cards.

SuperFonts will also print hi-res and double hi-res pictures, or parts thereof, within the text, although you cannot wrap text around the picture. The system is quite easy to understand and is well illustrated in the examples given on disc.

At the start of the text you indicate which fonts (held on disc) and which hi-res pictures (also held on disc) are to be used. These are then loaded into memory and the text is printed. SuperFonts understands AppleWorks print formatting commands

of using a font of twice the asked for size to do the actual printing.

According to the manual, if the required, double-sized font is not available the normal size will be used. In fact a high resolution print at half the required size is obtained, properly formatted – compare Figure IV with Figure III. This SuperFonts “bug” should be left as a “feature” as it is very useful for footnotes and picture captions.

Good variety

Some of the fonts contain extra characters (Figure V) and some maths symbols and Greek are available from the Symbol font. All fonts may be printed in italic, outline, shadow or inverse and of course AppleWorks’ super and subscript, underline, bold and line-spacing commands all work. In fact the only AppleWorks Open Apple+O commands which do not function are CI, P1, P2, LI, GB, GE, PH and EK.

I recommend SuperFonts. It is easy to use

describe the variety of characters and symbols available. You have to set up and print a file to find out. You can of course add more fonts if you have access to ProDOS 16/IIgs fonts.

The next TimeOut application I tried was UltraMacros (version 1.3). This differs from the others in that another install program as well as TimeOut has to be run. This puts the required macros into memory for immediate use. In case you don’t know, macros are just two or three-key combinations which can accomplish a wide variety of tasks: A simple AppleWorks example is Control+L which switches underlining on and off.

There are a number of default macros and plenty of examples in the manual and on the disc. In my opinion the most useful default macro is Solid Apple+Delete which deletes the character under the cursor.

Others allow the case of the character under the cursor to be changed, and the date or time to be entered. The date comes from ProDOS (it’s the one you enter at startup) and the time comes from a clock – if you have one: If not you get 12.00.

Two of the default macros move the cursor left or right through text to the next space. This could be incredibly useful when highlighting blocks of text for deleting or moving, but unfortunately they do not work in the highlighting mode. This should be remedied – perhaps I will have to write my own.

Mice welcome

As well as macros there other goodies. Owners of a mouse card or a IIgs can use the mouse to move through text, cells, records or menus just like using the arrow keys and the mouse button may be used to select from menus or to quickly scroll through a file. I found this very convenient.

Another good idea is the Screen Preserver. If the keyboard or mouse have not been touched for a while the screen will blank. At a touch most keys restore it without inserting anything.

The Data Converter allows data to be quickly transferred between the spreadsheet and the data base. Incidentally there is a very good demonstration on disc of macros, data conversion and TimeOut graphing.

Your own menus may be created within AppleWorks or you can use precompiled macros called Task Files which are saved as system files on the startup disc and which ▶

Figure II: Chicago

The move to interrupt driven hardware has prompted the production of pop-up programs in every micro-computer system you'll likely to come across. They cover spelling checkers, thesauri, calculators, programming aids, clocks and calendars. In fact if you can think of a use for one I'm willing to bet you can go and buy a version right now. On the Mac and under ProDOS 16 on the IIgs they usually take the form of Desk Accessories but life is not necessarily interrupt driven under ProDOS 8 and pop-ups only appear within certain applications.

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Figure III: Courier

and adds some of its own. These are included in angular brackets. The examples in Figure II and III show a couple of the fonts available.

A preview of the pages to be printed is available on screen although on a colour monitor it is diabolically difficult to read.

You can elect to print in draft, standard or high resolution mode or in a 50 per cent reduction mode. SuperFonts uses the Macintosh trick, when in high resolution mode,

and totally accessible from within AppleWorks. There is no need to write the file to disc, exit and run another program and then return to AppleWorks. It will also print from a given page to another, something that AppleWorks will not do.

The quality of output is excellent and with an ImageWriter is equal to that from a Mac. I do wonder how long it will be before a LaserWriter version comes out! The only problem is that the manual does not

The move to interrupt driven hardware has prompted the production of pop-up programs in every micro-computer system you'll likely to come across. They cover spelling checkers, thesauri, calculators, programming aids, clocks and calendars. In fact if you can think of a use for one I'm willing to bet you can go and buy a version right now. On the Mac and under ProDOS 16 on the IIgs they usually take the form of Desk Accessories but life is not necessarily interrupt driven under ProDOS 8 and pop-ups only appear within certain applications.

In fact, pop-ups really only appear within AppleWorks which probably says something about the tremendous popularity of AppleWorks. It also suggests that in some people's eyes there is a need for adding to or improving certain aspects of the program. So far we users have been offered AutoWorks, MegaWorks, MacroWorks, various desktop expanders and the Pinpoint series of accessories.

Figure IV: High-resolution half-size output

◁ may therefore be used from outside (as well as inside) AppleWorks to accomplish specific, repetitive tasks.

Of course I have not yet fully described the most powerful aspect of UltraMacros, the macros themselves, and so it is difficult to comprehend how powerful this system can be.

There are two pop-ups associated with UltraMacros: Macro Compiler and Macro Options. The latter allows configuration of

To avoid disaster and make life easier I have always wanted a command to restore my default pathway. Now I have it and it may be invoked from anywhere by pressing just Solid Apple+D.

The precompiled macro to do this is:

D:<all><oa-q esc>5<rtn rtn>5<rtn
oa-y>/appleworks/files/<rtn esc esc>
<oa-q><rtn>!

I produced it by recording my keystrokes and saving it to disc so that it always loads.

you have been warned!

Whether others on disc are as dangerous I do not know – there are so many combinations possible. Even after losing half an hour's typing I still like UltraMacros – I'm just not going to use other people's macros from now on, not even those from the author, Randy Brandt, unless I thoroughly test them first.

Interestingly, there is one more option available on the UltraMacros disc at install time. This is intended as an advert for a set of AppleWorks patches which may be bought from the same author. What it does is patch AppleWorks so that Control+@ may be entered from the keyboard.

You may remember that there has been discussion in *Apple User* about this problem, especially with reference to printer interface control. Well, this patch works, but only on a non-patched AppleWorks. In

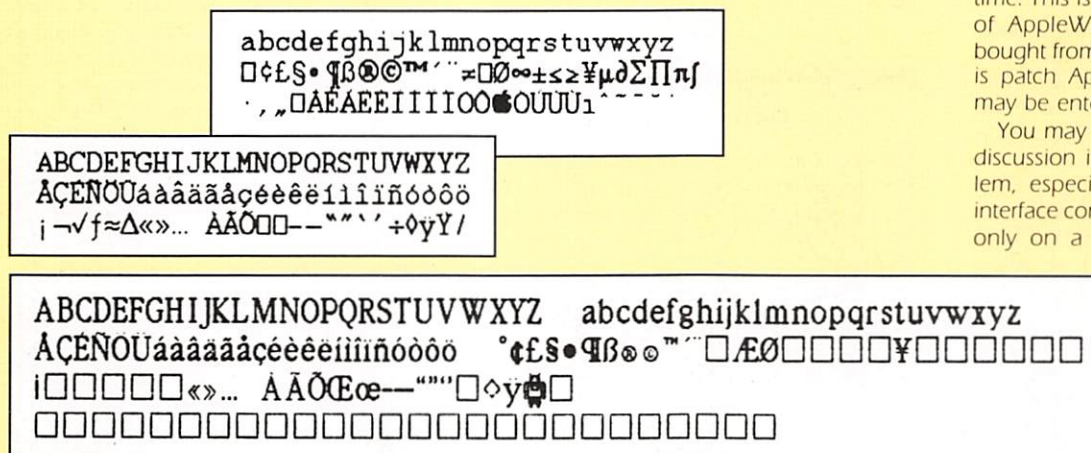


Figure V: Some fonts contain extra characters

the macro system and the launching of Task files. The former compiles macros from an AppleWorks text file into memory and these may be saved to disc and used as the default set from startup. It is also possible to "record" macros directly from the keyboard.

A macro can use all possible keystroke combinations but there is much more to it than this. There are number and string variables available, together with commands (called tokens in the manual) to perform a variety of "programming tasks".

There are too many options to describe here, but to give a flavour of what is available, you can input strings from the keyboard, and wait for keypresses. There is a repeat structure and an if-then-else structure. Macros can be defined to work anywhere within AppleWorks or be restricted to a certain area.

Step by step the commands break down like this. The `D:` governs the character to use while `<all>` describes it as valid in all areas of the program, and `<oa-q esc>` is a quick and nifty way of ensuring that you reach the main menu.

I select option 5 (Other Activities) then option 1 (Change current drive or Prodos Prefix) with the two rtns. I select option 5 from this menu and issue oa-y to delete the prefix which AppleWorks displays. I then type my prefix and issue a <rtn>, press esc twice to reach the main menu and use oa-q to return to where I last was within the last file used.

As I said, this is just a simple example, but it saves me a lot of time and wasted keystrokes.

Another thing that annoys me about AppleWorks is the rigmarole of having to press Return twice to start up, even though the program automatically puts in the correct date from the on-board clock. By adding one more macro and creating a task file called START.SYSTEM I can, not only start the whole system without any key-presses, but also set up my default prefix. The new macro is this:

$$] : \langle \text{all} : \text{rtn} : \text{rtn} : \text{sa-D} \rangle !$$

Note that the last command of this first macro calls my macro described above.

The only problem with macros is that they can be too powerful! There is a file called `Macros.startup` intended as an example of creating menus and task files. After compiling this the Solid Apple+up and down arrows are deadly and all too easy to use by mistake, especially on a IIqs.

The cursor will move erratically around the document, highlighting odd parts. AppleWorks menus will then flash before you and all your desktop documents will be emptied. They still exist but in name only —

other words use it first before installing TimeOut and UltraMacros. Incidentally, it comes back on my machine as if it has failed and displays an apparent AppleWorks error message, but it does in fact work!

Consistency

I will cover the other TimeOut utilities next month: For the moment I will say that in general, and omitting FileMaster, the utilities are good and consistent with themselves and with AppleWorks. The only real problem is that to be used at their best they should be in memory and they can consume quite a bit (pun from a Christmas cracker).

With the system described here (Figure 1) with each pop-up in memory I lose 137k from the desktop. Then SuperFonts needs more memory for each font and picture at print time and UltraMacros can use more if I compile and use more macros.

Ideally you need an Apple Memory card or Applied Engineering's expanded desktop system (I have not been able to test Cirtech's system). I think that the TimeOut system is built around a IIgs rather than a IIe and the IIc could well be left behind, even with a 394k desktop courtesy of Applied Engineering's Z-Ram.

Cursor commands

Any one macro can of course call others and there are commands to move the cursor around the screen. Macros can be very useful in conjunction with other TimeOut utilities: A good example on the disc makes the setting up of SuperFonts even easier.

One simple example of my own may make things more obvious. I keep my word processor files on an 800k startup disc in a subdirectory, the path to which is /APPLEWORKS/FILES/. Now every time I look at another directory, which is often, the data disc pathway is destroyed and commands such as Open Apple+S will not work properly and could even be dangerous if I have multiple copies in different locations.

*Products: TimeOut v1.0 – FileMaster v1.0,
SuperFonts v1.0 and UltraMacros v1.3
Supplier: Beagle Brothers
Price: £29.51, £47.77, £35.60
Requirements: Apple IIe, IIc or IIgs running
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A real Lisp for Macs

LISP has been around since it was first designed by John McCarthy in 1957. In that time it has undergone many changes, not least because one of its virtues is that it is infinitely extendable by the user: If there isn't a function to do exactly what you want in the way that you want it, you write your own and incorporate it into Lisp itself.

For many years, every serious Lisp hacker had his/her own personal computing environment, usually written entirely in Lisp and usually entirely unlike anyone else's. This meant that Lisp programs were rarely, if ever, portable from one Lisp system to another.

But gradually certain universal favourites emerged, mainly in the way of program creating and debugging tools such as the Emacs editor, the "break" facility and the tracer and stepper.

Over the last five years or so, the worldwide Lisp community has been agreeing on a common core of Lisp functions, and in the process has sought to rationalise and to generalise the functions themselves. The result is Common Lisp, the most intuitive, elegant and powerful version of Lisp ever designed. If a Common Lisp system is implemented according to the CL specification, its programs will be totally portable to other similar systems.

Unstable

Existing Lisp implementations for the Mac are Le-Lisp which seeks to impose a European standard more like the outdated UCI Lisp, Exper Common Lisp which crashes too often to be seriously usable, and Procyon Common Lisp, made in Britain and far better than either of them (David Betz's XLisp was never intended to be a full Lisp).

Coral's Allegro Common Lisp has three big advantages over its competitors: It is a

Tony Hasemer looks at Allegro, Coral's implementation of Common Lisp

complete Common Lisp implementation – and none of the 775-odd CL functions are left over for future upgrades or fail to work according to the Common Lisp specification – it can survive many hours of complex programming activity without falling over and it is fully and very smoothly integrated into the Macintosh user environment.

Included with the package is Guy Steele's 'Common Lisp: the Language, which is the manual for the internationally agreed CL specifications as they stood in 1984. Coral has also implemented extensions to the standard as agreed since then, and include an object-oriented programming system which supports multiple inheritance.

Coral Software Corporation was set up by researchers from the Massachusetts Institute of Technology – itself the international Mecca for Lisp programmers – so they knew what they wanted. Anyone who has used Lisp on a large mainframe or (in particular) on the Symbolics Lisp Machine, will at once be at home with Coral's Common Lisp.

The programming environment consists of a series of windows. One of them is the Lisp Listener window, a Lisp top level into which your newly-created functions can be "zapped" for instant evaluation and use. If one of them doesn't work – as is usually the case, of course – you have at your disposal an array of debugging tools with which to analyse your code under actual run-time conditions.

The remainder of the windows are Emacs editing windows, in which you write your Lisp functions, your program. Once you've found the bug in your program, you go back from the Lisp Listener to the appropriate edit window and cure it.

This run-edit cycle is the fastest method of program development yet devised. There is no waiting around for the system to re-compile a whole program, no obscure error messages because the interpreter can't "see inside" compiled code.

If you've written your Common Lisp code according to a few simple rules – mainly involving lexical scoping for variables – your functions can be incrementally compiled, and then decompiled on the fly if necessary – say, while "stepping" through them in search of a bug.

Significance varies

However, on most machines the window arrangement is none too flexible. You move from one to the other via control characters, and yet the control characters themselves may have entirely different significances depending upon which window you are in. Changing the sizes and the positions of the windows can be a real pain.

But Coral has entirely integrated the idea with the normal Mac environment. Not only can you resize and reposition your windows to your heart's content in the normal click-drag way – it's a dream environment on a big screen where you can have half a dozen visible editing windows besides your Lisp Listener – but most of the things you will most often want to do, such as loading a new file, evaluating all or a part of it, debugging it, checking on the state of your global variables and so forth, are all there on menus. Suddenly, Lisp is no longer a teletype-oriented language,

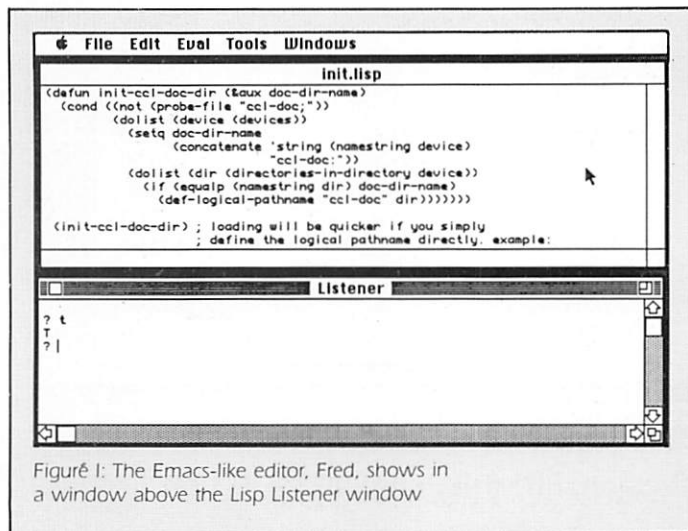


Figure I: The Emacs-like editor, Fred, shows in a window above the Lisp Listener window

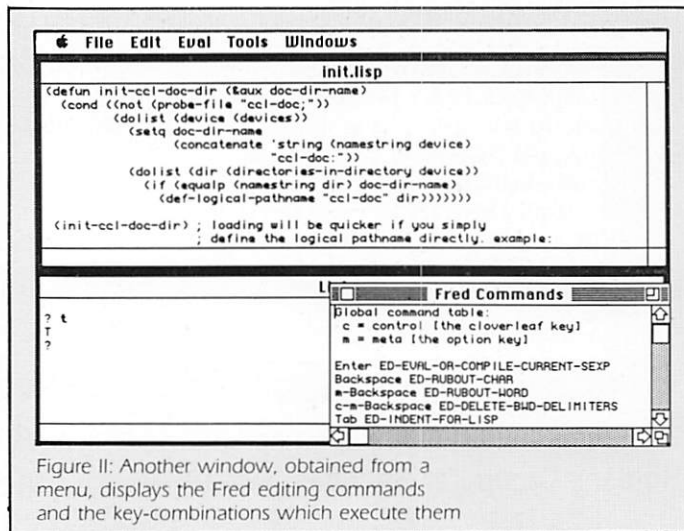


Figure II: Another window, obtained from a menu, displays the Fred editing commands and the key-combinations which execute them

but is as natural to use as the Mac itself.

Some advanced Lisp implementations (the one on the Symbolics, for example) provide a "top level editor". What that means is that if, as so often happens, a top level (Lisp Listener) call to your latest function fails, and hence if you want to repeat the call, perhaps with a change or two after editing the function, you can simply mouse-click on the failed call, edit it in situ, and then re-execute it.

Allegro gives you a lovely way of doing this. The mouse, of course, will put the cursor where you like within the failed call. Hitting Return will bring the entire failed call to the bottom of the Lisp Listener window, just as though you had typed it there yourself – former users of BBC micros will know what I mean. Via the usual Mac operations of clicking, dragging or backspacing and retyping, you can correct the call either before or after you bring it down. A second Return then evaluates it.

But that's not all. Every one of the Emacs-like editor commands works within the Lisp Listener window. Zipping to the start or to the end of a line, moving forward or backward by one Lisp symbolic expression, moving up or down via the arrow keys, are all supported.

Calls accepted

Except for the fact that it will execute your programs, the Lisp Listener window is functionally identical to any of your editing windows. In this respect only the hugely expensive Symbolics can hold a candle to Allegro Common Lisp running on our beloved little Mac.

What's more, there is one essentially Lisp-specific concept which Allegro handles even better than the Symbolics, and that is the Inspector. In Lisp, programs and data are the same thing – the same type of object. Any function which requires arguments is quite happy to accept a call to another function as one or more of its arguments, and the Lisp interpreter is smart enough to do everything in the right order.

Similarly, actual data objects in Lisp can get arbitrarily huge, and their slots may well contain function calls rather than other data objects. The Inspector is used to "dig into" complex objects in a recursive way, so that you can not only see what is in the slots, but also make sense of what you find.

Allegro's Inspector initially puts up a special window in which each slot of some chosen data object is described in terms of what fills it. And each item is mouse-sensitive, so that if some particular slot contains another data object or function, you can click on it to get another window with equally mouse-sensitive items in it, and so on.

This is the fastest and most intuitive method I have ever encountered for seeing exactly what is in some hugely complex data structure, and it blows the minds of

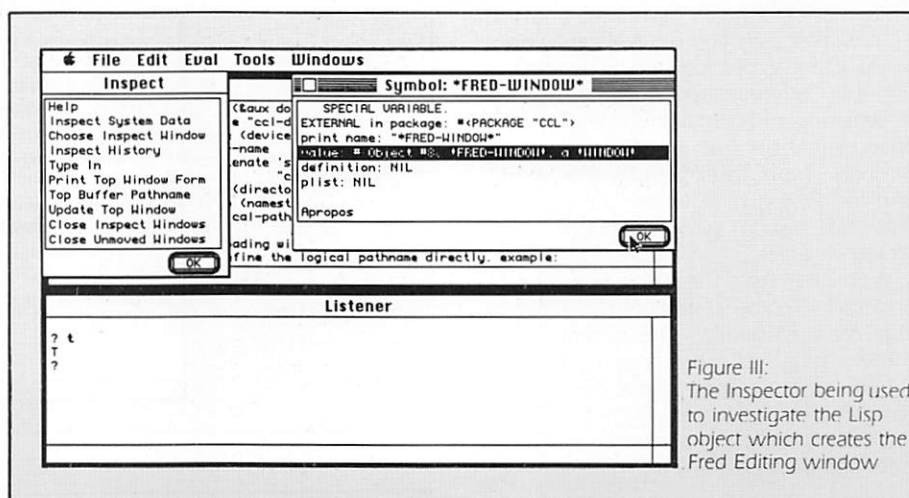


Figure III:
The Inspector being used
to investigate the Lisp
object which creates the
Fred Editing window

our Lab's Symbolics hackers: They have had to put up with non-mouse-sensitive textual printouts for years.

Far from common

This is the point where I have to say that Coral's product is far more than just Common Lisp. It has full access to the Macintosh QuickDraw routines: Put hyphens instead of spaces, write the whole thing in lower case, and the name of any QuickDraw routine becomes the name of a working function in Allegro CL.

It took a colleague of mine, who knew nothing at all about QuickDraw, about an hour to write a full C-curve and Dragon-curve drawing program, which we later used at an Open University Summer School to demonstrate recursion.

Allegro also gives you everything you need to manipulate windows, menus, dialogs and Macintosh "events" such as mouse-clicks. You can, quite seriously, write your own Macintosh applications in Allegro Common Lisp without knowing anything about C or Pascal. If you do happen to have programmed the Mac in Pascal, there is an extensive low-level interface for such purposes as calling Macintosh traps, managing the memory, and sharing data between CL

and the Mac operating system.

Coral is currently prototyping some add-on products for ACL, such as the Dialog Designer, a ResEdit/MacDraw-like tool to simplify the process of adding real Mac interfaces to your programs. The company is also planning to implement the famous Flavors object system. These should be available within the next few months, but meanwhile ACL offers its own very usable object system – complete with its source code.

Object-oriented programming is very new and very exciting. Instead of functions your program consists of a series of "objects". These are arranged in a hierarchy of classes and instances (or parents and children) and can thus "inherit" both values and functionality from each other.

Pass the message

Any given object "knows" – because you the programmer gave it the necessary abilities – how to do certain things such as drawing a representation of a Klingon spaceship at any desired point on the screen. All you have to do is to "send it a message" asking it to do so. If it doesn't know how to, it tries to inherit default values or methods from higher up in the

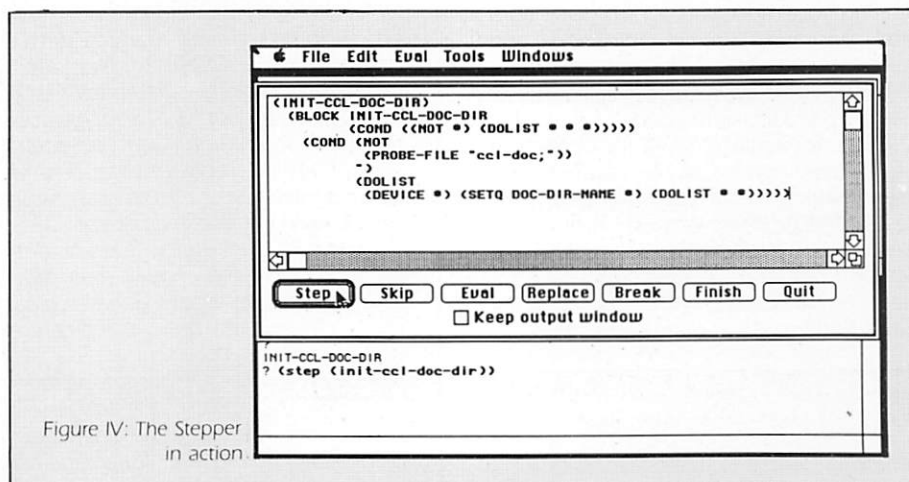


Figure IV: The Stepper
in action.

hierarchy. If it can't do that either, you get an error.

For many tasks, once you've seen how to do it with objects you wouldn't ever want to do it any other way. For example we wrote in Common Lisp a Prolog interpreter, in which each new Prolog subgoal encountered became an object, inheriting of course from an earlier object representing the Prolog goal whose subgoal this was, but having its own value-slots for Prolog variables.

When the Prolog interpreter needed to backtrack – a process notoriously difficult to implement efficiently – the system simply threw away all the now-redundant subgoal objects. One of the real joys of the program was the way in which it made the sometimes confusing operations of Prolog clear and obvious.

Customised, naturally

Astonishingly, Allegro's basic Common Lisp programming environment comes in a single application which still fits comfortably on to an 800k disc. You get the usual personal initialisation file (Lisp isn't Lisp unless you can immediately start customising everything in sight!) run automatically at startup, and from it you can load the various extensions to Lisp itself – the QuickDraw routines, pop-up dialogs, and so on.

Once up and running, this review copy of Allegro needs around 1Mb of ram, and then of course you need room to run your own programs. It will, only just but utterly reliably, come to life on a Mac Plus, where it runs incredibly slowly because of virtually continuous garbage-collections – automatic freeing up of unused memory pointers.

On the Levco Prodigy (68020, 4Mb) it feels as though I had a Vax all to myself! The release version will come in various sizes, so that for example by being willing to forego a few of the more esoteric facilities you could have a copy which will run at perfectly usable speeds on your Mac Plus.

One very sensible piece of marketing is that the price of Allegro to educational institutions will be very low indeed, considering how much you get. To get Allegro firmly ensconced in the universities and colleges, where of course most real state-of-the-art AI research is done, strikes me as a very smart long-term policy.

This is a beautiful product, the one which Lisp-hacking owners of Macintoshes have been longing for. If you love Lisp, then despite the probable conversion of dollars directly into pounds you'll be glad you bought Coral's Allegro Common Lisp. It's a real Common Lisp, with a great many extras besides. What more can I say?

Product: Allegro Common Lisp
Prices: full version, \$600; Mac+ subset, \$100.
Educational discount, 50%
Publisher: Franz Lisp Inc, Berkeley, California

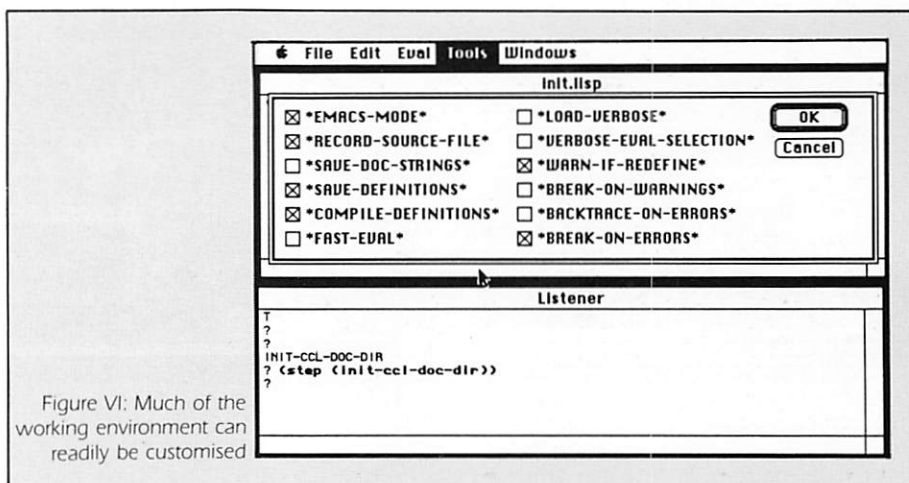


Figure VI: Much of the working environment can readily be customised

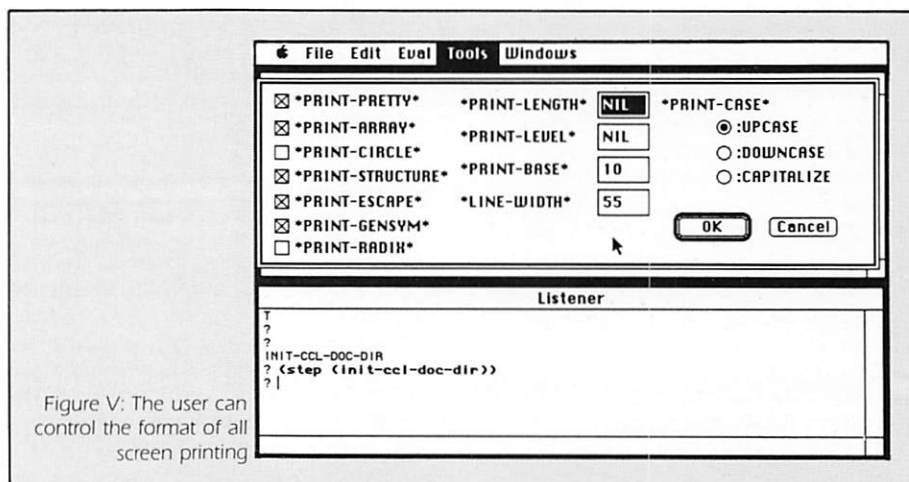
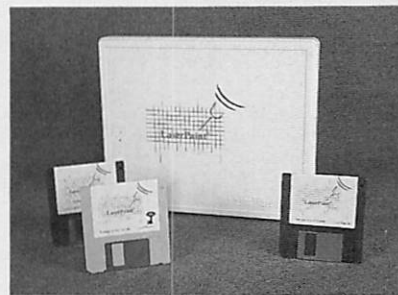


Figure V: The user can control the format of all screen printing

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Service has new specialist role

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Last year its charter was changed to allow it to maintain a register of chartered psychologists which the general public will soon be able to consult.

This gives the country a new breed of chartered specialists whose education and professional conduct the BPS oversees.

The society is no stranger to the benefits of electronic mail. For some time its members who work in academic institutions have been communicating via JANET, the Joint Academic Network.

By joining a more widely-used service like MicroLink, BPS members working in all areas of psychology can now communicate faster and more efficiently with the Society's offices in Leicester.

In addition the society's extensive business activities, which include publications and software, will be enhanced by MicroLink Email and telex facilities.

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Good relations

REFLEX for the Mac is an easy-to-use, low-cost relational database system from Borland International. Firstly, if there are any IBM users out there, it's important to say that this is not the same product as Reflex on the IBM (also from Borland). In fact it's not even remotely related – so I am at a loss as to why it carries the same name.

Easy to use

Reflex for the Mac was originally released under the name Interlace, and subsequently taken into the Borland stable: Indeed the manual still contains a couple of references to Interlace in the text. With that sorted out I shall attempt to explain what Reflex is all about.

Reflex is a database system capable of handling single or multiple-file databases in a very easy way, using a strongly visually-oriented, intuitive approach. Its major strength must be the ease with which even quite complicated databases and reports can be set up and used.

As always, ease of use means some loss of flexibility, and it is certainly the case that Reflex is not in the "power-user" league of say Omnis, Double Helix, or dBase Mac – but then again, it is a fraction of the cost.

Reflex comes on two, unprotected, discs and with a hefty 326 page manual. The first 80 pages are a tutorial session on creating a single file database and associated reports. The documentation is excellent and every page contains pictures of what to expect on the screen, in the menus, and in the dialogue boxes: I wish all software companies put so much effort into their manuals. There is also an interactive online help facility covering all aspects of Reflex.

Peter Gorry tries out Borland's low-cost alternative database

If you have never created a database before this must certainly be the most painless introduction (bar one niggle – see later) that you could get. If you are an old hand then you will be able to pass through this section very quickly. It starts by defining a few key concepts, such as field, record and file. It then moves on to setting up a "Birth-day" database containing three fields: a first name, a surname, and a birthdate. I'll briefly explain the procedure.

On launching Reflex you are placed in the Database Overview window and it is from here that the major database functions are accessed. Your first task is to start a new database and right from the beginning the visual approach is prominent.

Variable fields

As each new field is created the emerging database is represented by a box containing the field titles. The database box and field names can be resized, moved and edited very much like objects in MacDraw. The type of field is set from the Describe menu: The first two fields are simply text fields, and the third is a date field.

The text fields in Reflex have one major advantage over many older (and newer) databases in that they are of variable length. This means you don't have to decide the maximum length to be allocated for each one when you start off. This is

especially useful for things like bibliographies, say, where a field like "Authors" may contain one name or ten.

Fixed length fields mean you have to set aside enough space for the maximum you might need, resulting in a lot of wasted space in most entries. In fact Reflex has a maximum field length of 1002 bytes (a lot of text) and you can have 254 fields, but the maximum record length is constrained to 1008 bytes – so you must bear this in mind when planning how much to put in a record, though I have yet to find the size limitation a problem.

Solitary bug

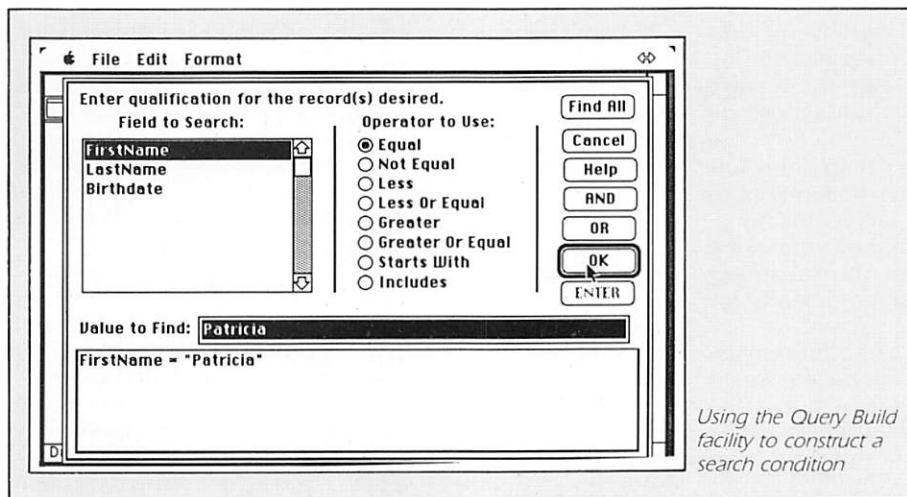
The manual states that the date field is in the format Month/Day/Year (the US format), but if you have localised the Mac International resources to the European convention of Day/Month/Year Reflex will expect it in that format instead. Attempting to enter an invalid date results in an error message and examples of correct dates – but in the US format. It's a small niggle, but any ambiguity early on in a tutorial can cause a lot of trouble to new users.

In fact the only bug I encountered in Reflex occurred with the date field later on when I attempted to change its format to one that shows the date with the month written out in full. Any attempt to change the format resulted in an Unknown System Error #3970 – can there really be that many unknown errors?

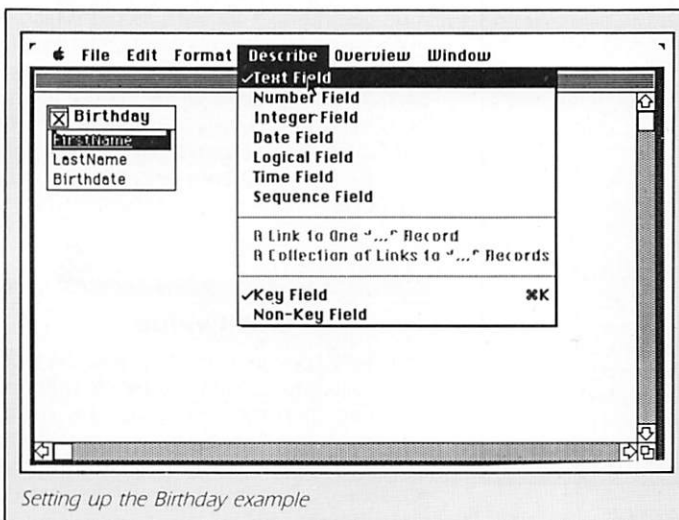
Fortunately, clicking the OK button actually let you carry on unharmed – a miracle in its own right. I found the only way to reformat the date field was to localise to the US standard, change the date format, and localise back again. I'm sure that this is a bug that will be cleared up in future releases.

Anyway, back to the tutorial. Before you can save the database layout – and hence use the database – you must first set one of the fields to be a Key field. This is just the field that is used to index the database. For example, if the FirstName field is chosen the database will be sorted alphabetically by people's first name – regardless of the order that they are typed in.

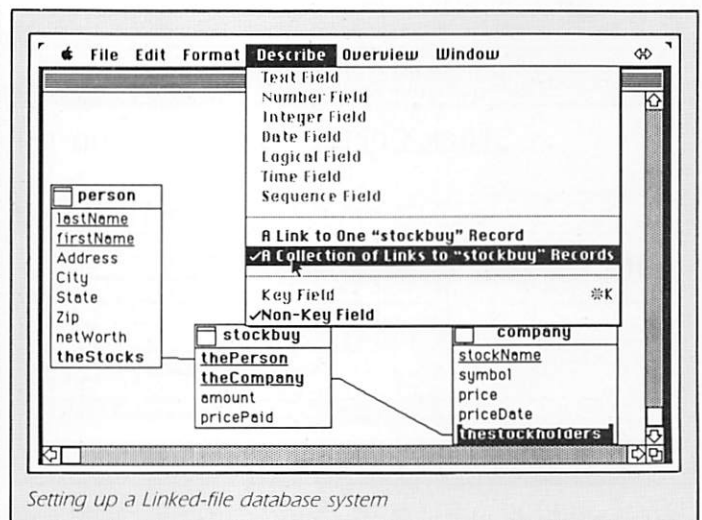
You can use more than one field as the key: In this case the highest one on the list takes precedence, then the next one, and so on. Key fields must uniquely define the record, so first names would not generally be sufficient. Surname and first name would be adequate for small lists of people, but large databases (where the possibility



Using the Query Build facility to construct a search condition



Setting up the Birthday example



Setting up a Linked-file database system

of two "John Smiths" can not be neglected) would need something more – a point we shall return to.

Data entry is achieved by simply double-clicking on the database name in the Overview window. A data entry window appears with the field names opposite empty boxes. You just type into the empty boxes, using the tab or Return keys or the mouse, to move from field to field. When a record is completed you can move to a new one with the New Record item in the Database menu, or Command+E, or by pressing Enter.

Sophisticated commands

The database can be browsed through using the First, Last, Next, and Prior Record items in the search menu, or their keyboard equivalents. Obviously this is only useful for small databases and Reflex allows the search commands to be very much more sophisticated than this – and you are quickly introduced to using the QueryBuild option to construct such complex search criteria.

This is a simple way of building up search commands with the minimum of typing and its use is illustrated for the Birthday database example. The top left window contains a list of the fields in the database and one can be selected simply by clicking on it. The middle column contains the search criterion for that field and the right hand column contains the words used to "join up" multiple conditions, as well as the Help, Cancel and Enter commands.

The search command is built up for you in the lower box as you use the various options. For instance to search for people with the first name "Patricia" requires the following actions: Click on the FirstName Field, now click the Equals button, type Patricia and click the Enter button. The search criterion FirstName = "Patricia" now appears in the lower box.

Quite complicated search expressions can be built up very quickly in this manner.

The browse commands now only locate records that meet the search conditions so you can quickly look at each record in turn.

Furthermore, the search condition appears in a little panel above the record where it can be edited directly – in a manner somewhat similar to editing the formulae in spreadsheet cells. In this way making simple changes to the search condition ("Fred" instead of "Patricia", say) can be performed without returning to the QueryBuild window.

One of the most important parts of a good database is its report generating capabilities. Reports are the devices by which a database can be interrogated to extract particular pieces of information, generally in a concise form. For instance, you may have a client database with details of share portfolios. A typical report might be one that just lists the client names and their total share values.

Like everything else in Reflex, the generation of reports is very easy, although a little more planning and concentration is required here, especially in the earlier stages. The report capabilities are extensive and I can only give a flavour of them here.

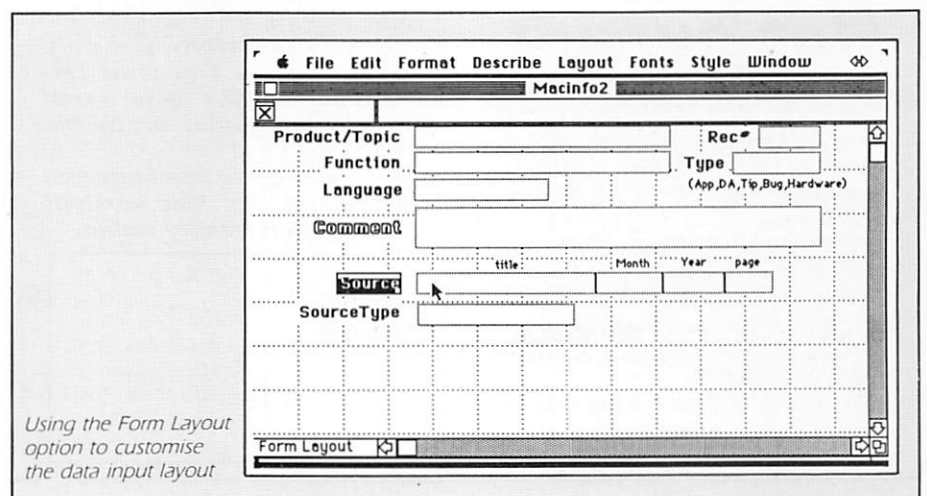
After first defining which fields are to be

accessed by the report and defining its layout (more of this in a minute) the "basic report" will appear on the screen. In its simplest form this is just a series of columns, one for each field selected. The contents for record one are in row one, those of record two in row two and so on. This can be scrolled through, sorted, printed or whatever.

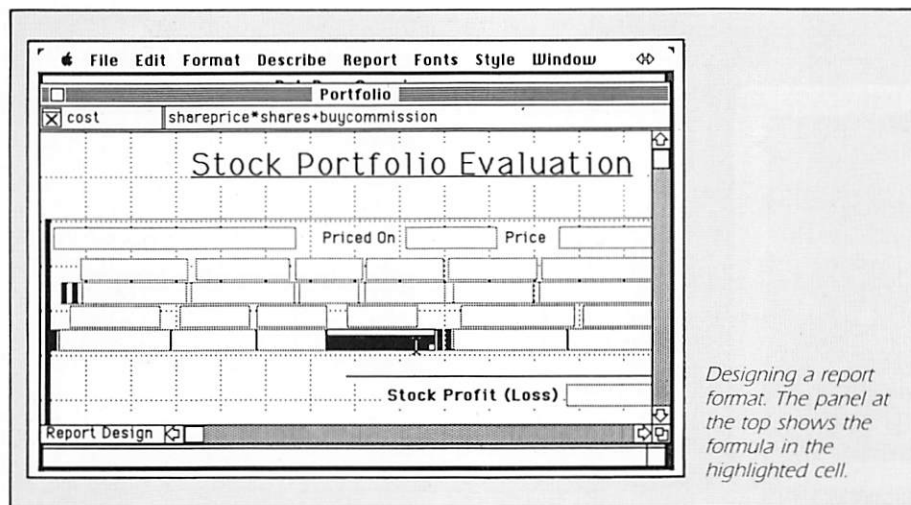
Simplified

As with the search facilities we can define extensive report criteria, by using the Paste Query option. This again invokes the QueryBuild facility and hence greatly simplifies the process. There are also more than 50 functions covering text, arithmetic, financial, statistical and date/time operations which can be used. These can be typed in directly or pasted in via the Paste Function option – which removes the need to remember all the names and minimises typing errors.

While on the topic of errors it's well worth saying that the UNDO command is well supported in Reflex and will allow you to recover from most mistakes. Users of



Using the Form Layout option to customise the data input layout



◁ spreadsheets will find the method in which report formulae are built up is similar in style to the way spreadsheet formulae are constructed.

Having established the basic database and reports, the real fun starts when you select Form Layout. This enables you to alter the data entry form to look just the way you want it to. In this mode a background grid is imposed on the data form layout and all items can be individually selected, moved, edited, resized, aligned and justified.

The feel of this part of the program is very similar to MacDraw in the way it operates. Each field and label can be in any font type and style and you can add labels anywhere on the page. You can also group items, and even change the names associated with each field. Finally you can incorporate pictures pasted from the clipboard into the form and put your fields and labels anywhere on or in the picture. This certainly produces one of the simplest and most versatile form layout procedures I have ever used.

The same process is available for report design and allows you to produce reports with considerable style and individuality. In fact this versatility leads, perversely, to one important limitation. The way additional

text is placed on the screen (in a box like MacDraw) makes it difficult to put items from the database into the middle of a block of text.

For instance, suppose you want to send a letter to everyone on the database and you want to include their first name in the middle of a paragraph of text. This means creating a box with the first part of the paragraph, then a box for the FirstName field, then a box with the remaining text.

Messy solution

Unfortunately there is no facility for varying the length of the box containing the name according to the name length – so you end up with big gaps, or truncated names depending on the size you choose. You can overcome this by putting the paragraph in a sort of super-length formula box which incorporates text functions to do the job, but it is rather messy.

Probably in recognition of this Reflex does provide a mail merge format to output fields to a file to be picked up by Microsoft Word say, but this really isn't a substitute for having the facility within Reflex.

A point mentioned earlier is the necessity to ensure that Key fields are unique. Reflex

provides a special Sequence field to provide a unique number for each record which is automatically incremented each time a new record is created. The manual also says that a check is made to see if the number is already used and will prevent duplicates: In fact I found that this was only the case if the sequence field was the only key field.

Good value

If multiple keys are used then you can type in an already existing sequence number providing then the rest of the key items distinguish the record. This is a potentially dangerous problem if you want to use the sequence number to identify items unambiguously.

If the facilities discussed so far were all Reflex offered it would still be good value for money, but it will also handle multiple linked-file databases involving up to 16 files. Section two of the manual is a further 80 pages on how to construct a three-file stock-holding database.

This section is well written and easy to follow and starts off with a simple analysis of why you might need multiple file databases and how to design them. I'll give a somewhat simpler example here to introduce some concepts.

Suppose you want to keep a database on authors and their book titles. This could be done using a simple single-file database with a record containing fields for the author's name and for each book title. Unfortunately some authors are very prolific so you may have to set aside say 10 or 20 fields for the titles, which would leave a lot of wasted empty fields for most authors.

A better solution is to have two databases, the first, Author, would contain a list of authors and the second, Books, a list of book titles. The only task then is to link the authors to the titles. This is done very simply in Reflex by defining a field in each database record to handle the linking.

For instance in our example here we could add a field called Titles to the Author record and one called Author-name to the Book record. The link is achieved simply by drawing a line from the one field to the other. Finally the link type must be defined. This is perhaps the only part which needs a little thought.

Links can be of two types: They can link to many records or they can link to only one. Since an author can write many books it is clear that the link in the Author record must go to many records in the Books database. If books were only written by one author the link from the Book record would be to a single record in the Author database. If you wish to allow for multiple authors then you would need both links to be of the multiple type.

Entering records in a multiple-file database is obviously a bit more tricky than for a single database since you must update all

Hot pursuit

THE latest Infocom release – Sherlock: The Riddle of the Crown Jewels – enables you to work beside Sherlock Holmes, arguably the world's greatest detective.

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the linked files. Reflex contains automatic checking to aid in this, but care is still required, and although the tutorial example worked well I found that the process became rather more hazardous if none of the linked fields were defined as Key fields.

In this case it is possible to type into fields that should merely be copies of entries in the linked file. I think a little more thought in this area would greatly improve Reflex. Report generation involving linked files is fully supported and a single report can collect information from all the associated files.

Custom file

Reflex can also import and export the database information to or from other files. Exporting/importing is carried out in one of four file formats, all variations on simple text files or the clipboard. The last option is a "custom" text file where you get the chance to define the way the file to be used is structured.

I used this last option to transfer a 700 record file with variable length fields from a custom-written database on an Apple IIe to the Mac (via Red Ryder) and to read it into Reflex. The process was remarkably easy. It's a pity, however, that Reflex does not

explicitly support some of the 'industry standard' file formats by name.

You can also use the export option to create a smaller database from a much larger one simply by writing out only the fields you want and then reading these back into a new database.

Are there things missing from Reflex? The answer must be yes and they are the things you get by paying a lot more for your database package.

If I had to provide a wish-list it would rectify the following. There is no application language facility, so you can't write programs or macro instructions to make turn-key database applications. This means that you are always "in Reflex" and even the most lowly user must learn a substantial amount to operate it.

For the same reason it is not possible to stop users altering whatever feature of the database they want to. Although data and report layouts can be protected from inadvertent changes you only have to select the appropriate menu command to turn this off. Along the same vein there are no facilities for password protection of fields or to offer restricted access.

It would also be nice to provide users with default options for fields at data entry, or to allow users to choose from a restricted set of options only. You can set some limits

on data entry, but the facility is rather limited. Finally, there are no graphical display options such as pie or bar charts – you get so used to good graphics on the Mac that it really does seem a major omission.

These criticisms should be taken in context and one can't expect everything from a low-cost product. It's an indication of just how fast software has developed in that Reflex would have been seen as offering facilities up with the very best only two or three years ago.

I would recommend Reflex to anyone looking for an easy to use but powerful database package for small to medium sized databases. Large business users would require the extra power (and complexity) of the more expensive packages and would probably find Reflex somewhat limited.

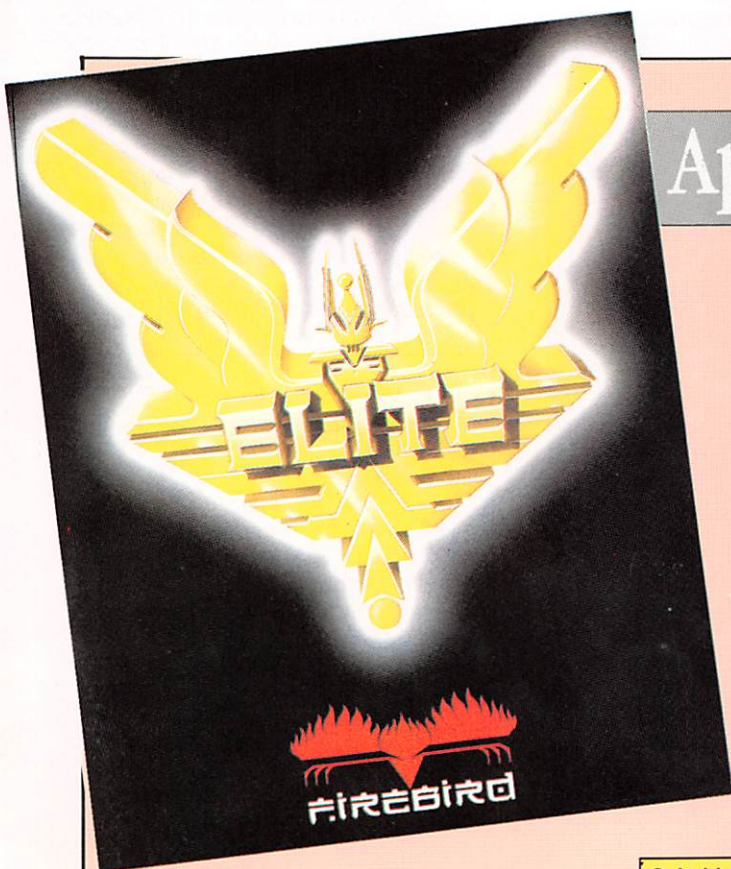
I must say I enjoyed using Reflex and I have two fully operational databases in constant use and I haven't felt the need to upgrade them to anything else – you can't say fairer than that.

Product: Reflex

Price: £99.95

Supplier: Borland International, 1 Great Cumberland Place, London W1H 7AL

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TO ORDER PLEASE USE THE FORM ON PAGE 65

Homemade Mac

***Simon Whomsley
finds a use for the
leftovers from your
Mac upgrades***

WHEN Apple first produced the Macintosh, priced at around £2,000, it boasted a 128k memory and a floppy disc with a capacity of 400k.

Its superb operating system and good graphics soon took up the 128k provided, so Apple produced the 512k version – the price for an upgrade from the older Macs was about £800.

A lot of third party firms took the opportunity to upgrade the old 128k boards by changing the 16 x 64k dynamic rams for

the 16 x 256k rams that were rapidly becoming cheaper, giving the required 512k. Apple's roms automatically recognised the extra memory and gave the user access to larger applications.

Taking out the ram was a particularly tricky affair as a lot of heat had to be applied before the chips could be extracted from the four-layer board. Many people preferred to cut the chips out instead, and to insert a small multiplexer circuit to provide the address decoding necessary to handle the extra memory.

The price for this upgrade varied from supplier to supplier, but was usually around £200.

The next upgrade from Apple was the 1Mb (1024k) Mac Plus, which gave the user an 800k drive, wide keyboard with keypad, a SCSI port and a new type mini DIN 9-way

connector for the serial ports.

The SCSI port allows very fast communications between the computer and devices such as hard discs and scanners.

A new back case was also supplied to accommodate the different port shapes and an upgrade meant an exchange of mother board with the dealer who could in turn return the board to Apple for a cash refund.

Out of stock

As the circuit board was in effect the largest part of the computer, and 400k drives – and keyboards – were also available, many dealers preferred to keep them for service stock, rather than return them for the relatively small credit involved. In fact, the only components missing were the power supply and monitor.

After buying a 128k mother board from a dealer I decided to try to interface it to a standard monitor and power supply. The power and video on the Mac go through the same cable (connector J7) from the mother board to the joint power supply and monitor board.

The connections are as follows:

- J7-1 Video out
- J7-2 Not connected (polarising slot)
- J7-3 HSYNC (inverse)
- J7-4 Sound out
- J7-5 VSYNC (inverse)
- J7-6 +5 volts
- J7-7 0 volts (GND)
- J7-8 -12 volts
- J7-9 0 volts (GND)
- J7-10 +12 volts
- J7-11 Battery (4.5 volts)

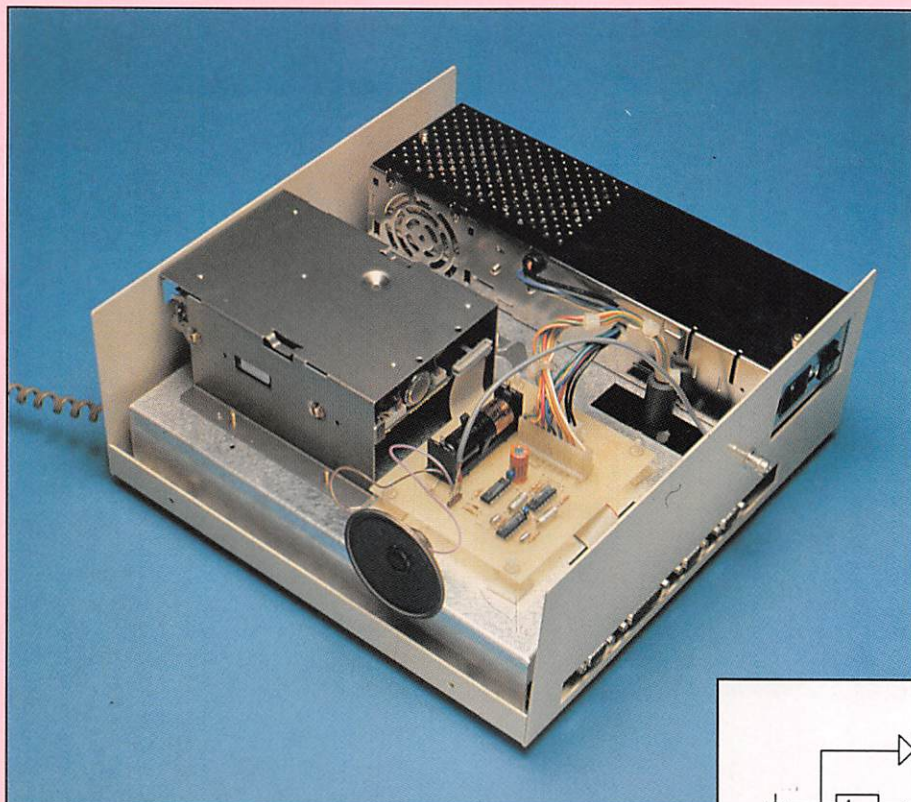
The first step – powering up the board – was easy. The power supply I decided to use was the Apple IIgs, because of its availability and comparative cheapness.

Also, being a switch mode type it occupies relatively little space, and being efficient does not produce masses of excess heat. The connections to the Mac connector are shown in Figure 1.

After connecting a 64 ohm speaker to pin J4 and switching on, the usual power-up bleep can be heard.



The finished product

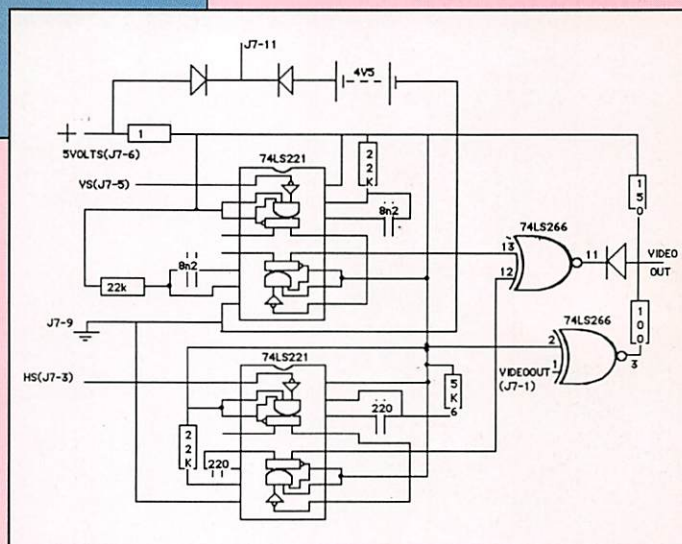


The custom-built case meets all requirements

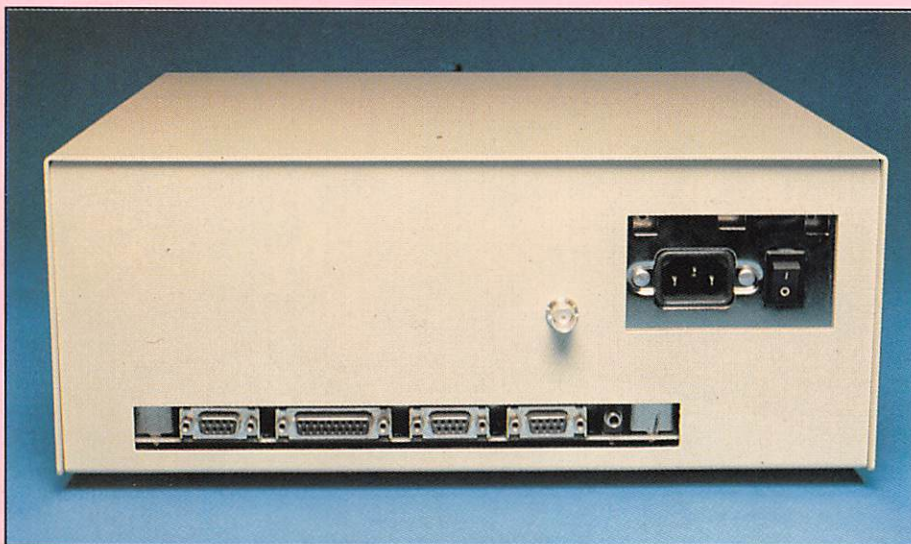
The next step was to look at the video circuit with the object of interfacing it to a monitor. At this point I found that the line rate (how often each line is sent to the monitor) was a lot higher than normal.

Apple had decided to use a frequency of around 22Khz instead of the more usual 15.7Khz as normally used in monitors for two very good reasons – the resolution is better and the frequency is above that which you can hear, so there's no annoying whistle.

Looking at monitors that could handle a 22Khz rate I found that prices were high –



Interfacing the mother board to a standard monitor and power supply



All ports are easily accessible

not under £100 or so as I had originally hoped – so an alternative had to be found.

I decided to try modifying an existing monitor that was available to me, the Apple IIgs monochrome monitor, once again readily available from Apple.

After playing around for a few hours, using an oscilloscope to measure the line frequency, I found that by swapping the capacitor C609 from 5.7nF to 3.9nF the correct line rate could be achieved.

The Mac's video signal needs to be mixed with its horizontal and vertical sync pulses and to do this a small circuit had to be made. The circuit also has to get these syncs to the correct format for the IIGS monitor.

The way to do this is to delay – and stretch the horizontal and vertical sync pulses with monostables. The circuit diagram shows the complete circuit based around the 74LS221 monostable.

The modified sync pulses are mixed together with the video out from J7 in a

small piece of logic and finally the output voltage is achieved by a few resistors and this signal can be fed into the modified monitor.

Also, a 4.5 volt battery has to be fed via a diode to J7-11. The results on the 12 inch monitor were great and all that remained was the case.

I tried to find an existing case that I could modify, but the two boards, power supply and 400k drive took up far too much space. I eventually found a firm willing to make one up out of sheet metal, and this put the final touches to the project.

For further details, contact JS Electronics on 02605 2017. A sample price, for collection of your Iigs monitor, PSU, & Mac logic board and KBD connector – to be returned cased modified and working – is £150. Total cost is around £600.

STARLIGHT EXPRESS

**David ffitch
gets Apples in
on the act**



** David ffitch is
video deputy stage
manager for Starlight
Express*

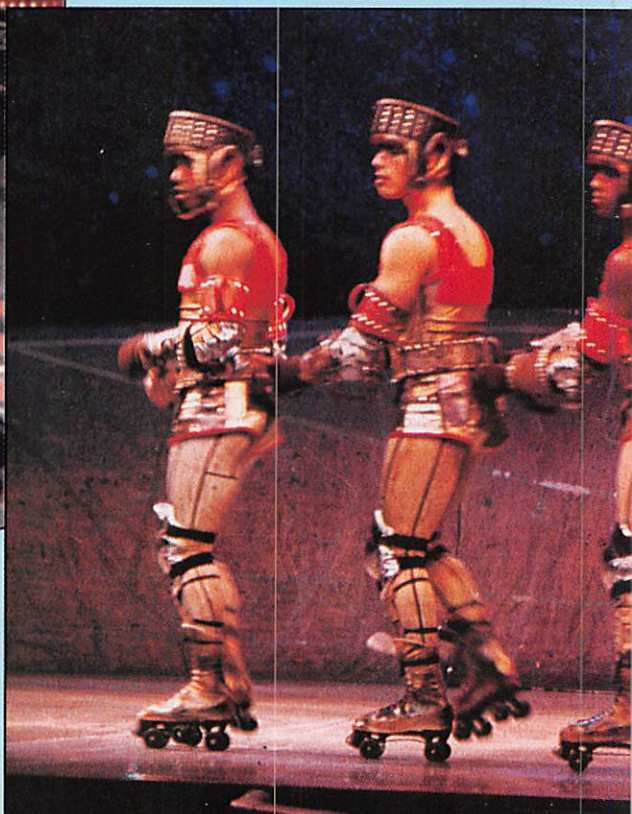
IF I asked you what do six video cameras, an array of theatre lights, a pair of roller skates, a stage manager and an Apple IIe have in common what would your answer be? The unlikely answer is "Starlight Express".

Andrew Lloyd Webber's musical, set among a model train set, was undoubtedly a technical masterpiece of theatre when the show opened back in March 1984.

During the show the trains (actors on roller skates) race on the different tracks which run around the auditorium and the front of the circle. The different levels on which the "Races" take place are linked together using platforms, and a six ton metal bridge, all using hydraulics which would look more at home as a press in a car factory.

In the middle of all the various tracks and moving pieces (like roller skaters) sit the audience. Here a problem arises: The people sitting upstairs in the circle, can't see the skaters beneath them on the stalls track, and there's the same problem when the skaters are on the circle track for all those sitting in the stalls.

Fortunately, this problem is solved by the use of the aforementioned video cameras, situated all around the auditorium. The pictures are vision mixed at the video control desk situated at the rear of the auditorium,



the output finally being projected by three large screen video projectors, two screens for the stalls and a larger one for the circle.

With the cameras so remote from the video desk, and the cost of six camera operators far too great, a method of remote control was needed so at the centre of this operation you will find an Apple sitting right next to my vision mixer.

The system for moving the cameras was actually a spin off from the lighting system used in *Starlight Express*. A London firm called Lightworks was commissioned to design and build movable lights with the facility to move up and down, side to side, and change the colour of the light beam using a colour roller system.

Preset cues

This system named MRL, or as we more affectionately call them Ayatollahs, went from design to construction in less than three months. The whole system was designed around the Apple IIe using a single disc drive, 80 column card and a serial communications card for its connection to the outside world.

The Ayatollah units themselves carry onboard microprocessors, basically holding the preset cue positions in its own memory. The Apple is used both to program the unit and, when in an operating mode, send to the unit the next cue number and its "GO" command.

The Apple then monitors the unit's progress while executing a cue, refreshing the coordinates on screen, and basically makes sure that in my case the camera is pointing in the right position. These positions are read as Pan and Tilt (X and Y) simply, by using potentiometers attached to the respective axes. For the lighting version,

THIS IS THE CURRENT CUE NAME LISTING, WITH COMMENTS

PRESS 'X' TO EXIT, 'C' TO EDIT, <- TO SCROLL BACK, -> TO SCROLL FORWARD

```

> 1 RACE 1 PRESET
  2 5 L 6 R
  3 C2 R
  4 C6 L(ZOOM)
  5 C4 L
  6 4R
  7 C4L
  8 C4 MID
  9 C6 R
 10 C6 STAGE C2L
 11 C2 R 5 R
 12 **Race 2 Preset**
 13 5L 6 R
 14 C1 R
 15 C2 5R
 16

```

LAST: 10 CURRENT: 11 NEXT: 12

JOY:1---0

Camera:1	Camera:2	Camera:3	Camera:4	Camera:5	Camera:6
40	32	HELP	170	254	208
92	111	HELP	109	89	87

Q)UE,G)O,J)OY,P)OS,S)ET,T)ERM,C)REATE,Z)OOM,F)AIL,D)UMP,L)IST,V)IEW,E)XIT:

AppleWorks organises rehearsal calls

another sensor is used to detect the number of times the roller has turned, this corresponding to a current colour position.

As I have mentioned, both lighting and camera units are situated quite a way from their controlling Apples, therefore a "buffer box" is employed. This has the effect of a bi-directional amplifier for the information both sent to, and received from, the Ayatollah units.

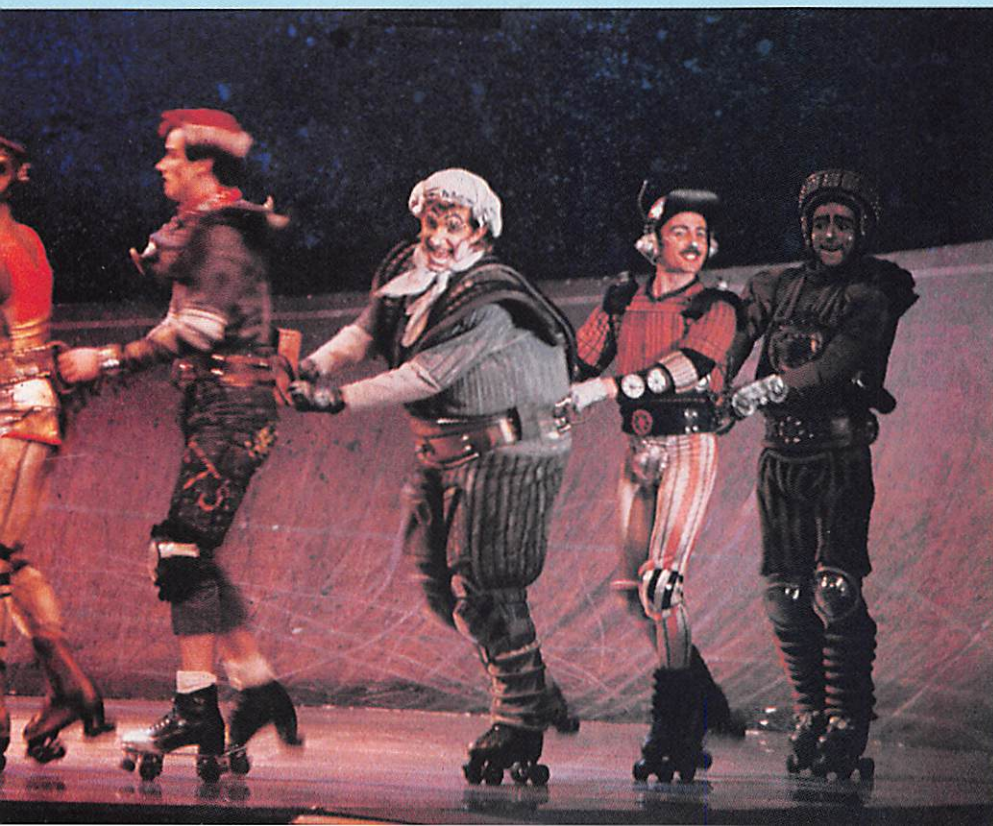
The software was written by Kevin Neville of Lightworks. Understandably, given the short development time, it is not that user-friendly, but it serves its purpose. Apart from the Go command, other commands allow you to dump the onboard Ayatollah memory to disc, reload the memory from disc – very handy on those occasions when the unit has ditched its memory – set and store positions for the preset camera/light positions and a small text editor for the comment section, which appears next to the current cue.

Picture mixing

I have made a few changes to the original software, basically on the screen appearance, and cutting down on disc accessing, every time a Go command was given, a comment was read from disc before the relevant information was sent to the remote unit. This was easily solved by changing from dos 3.3 to Prodos, and setting up /RAM to hold the 'COMMS' (comments) file. The change of disc operating system produced a few teething problems, but with these soon debugged the system ran a lot faster.

During races, the video uses two operators. I mix the different pictures from the six cameras all around the track, and my assistant, operating the Apple, provides me with the correct shots for that particular race.

Pressing a button to move video cameras to a preset position sounds easy, but this job is very artistic – starting the cue at the



◀ correct time can mean the difference between an excellent panning shot of the skaters racing around the track, or wonderful shots of the walls with not a person in sight!

All in all the system, originally designed as a new form of moving light, seems to function better for us on the video side at Starlight, probably because we only use the pan and tilt functions: The colour rollers always seem to throw up problems for the electricians working here. In the words from one song in the show, "Wasn't in the right place, at the right time..."

So, we've covered the array of lamps, six video cameras and in general the roller skaters – enter the stage manager. Simon Garrett fills that role at Starlight Express, being responsible for the technical aspect of the show for the last two and a half years of its run basically making sure that everything is "all right on the night".

He also has a tremendous amount of paperwork to cope with this includes scheduling rehearsal calls, which involves picking the correct members of the 42 strong cast to be at their various understudy calls, organising stage schedules – whether the stage is available for technical work or for rehearsals, keeping contact lists, ordering skate parts – the list is endless.

Rehearsal calls

All of this was done until recently by using a big stock of typewriter ribbons, and a vast amount of biros. That was until the day that Simon caught me using AppleWorks out on the 'Video desk', where I should have been replotting camera positions.

After giving him a quick trip around AppleWorks, showing him the word processor and a couple of my database files, Simon could already see the possibilities of its use toward easing his own manual workload. The merits of the word processor were obvious, but the database seemed an excellent candidate for the

Custom-written software makes sure the camera is pointing in the right direction

address book, and could revolutionise rehearsal calls.

Having sought permission from our general manager to purchase an Apple for our office, the system was quickly bought, and in operation. We acquired a IIe, 64k .80-column card and two disc drives. Epson UK kindly supplied us with an LQ-800 printer and interface so we were ready to start our own big bang.

I can say that the first couple of weeks were very painful for me, changing from the old manual to the new computer system. Being the only person at that time conversant with AppleWorks, having to set up, and input all the various databases, two spreadsheets and teach Simon how to use these different functions, I found myself spending every moment glued to the keyboard.

I also had the problem of the cast huddled around the new acquisition at the end of the room, each of them asking if

File: REHEARSAL.DB REVIEW/ADD/CHANGE Escape: Main Menu

Selection: All records

Record 2 of 38

=====

Reference: Cast

Title: Miss

Name 1: Braybon

Name 2: Beverley

Principle Role: 2nd Class Sleeper

1st Covers: Pearl & Dinah

2nd Covers: Buffy, Ashley, Joule, Volta, Wrench, Krupp

2nd Covers (2): -

Performs in (1): *R11*R21*R41*R51*CRG1*R12

Performs in (2): -

Sort No.: 16

Misc: -

=====

File: REHEARSAL.DB REVIEW/ADD/CHANGE Escape: Main Menu

Selection: All records

Reference	Title	Name 1	Name 2	Principle Role
Cast	Miss	Amphlett	Carole	Wrench
Cast	Miss	Braybon	Beverley	2nd Class Sleeper
Cast	Miss	Cardelle	Caron	Buffy
Cast	Miss	Caryl	Zoe	Swing
Cast	Miss	Daniels	Anna	Joule
Cast	Miss	Kay	Beverley	Dinah
Cast	Miss	Leeson	Kim	Pearl
Cast	Miss	Limerick	Allison	swing
Cast	Miss	Musty	Michelle-Anne	Swing
Cast	Miss	Powell	Shewae	Belle
Cast	Miss	Ranger	C.J.	Volta & 3rd C/Sleeper
Cast	Miss	Voyd	-	Ashley
Cast	Miss	Welby	Ruth	Swing
Cast	Miss	Williams	Ankie	Swing
Cast	Miss	Campbell	George	Swing
Cast	Mr.	-	-	-

Type entry or use @ commands @-? for Help

they could type their name in, or if they could play space invaders! Then there were the sceptics, even in our own department I'm afraid to say – probably because the printer encroached slightly on the typewriter space – referring to the Apple as "That thing over there". However, with the typewriter moved out of the way, I am glad to report no cases of sabotage, as yet.

The office Apple has helped Simon immensely to deal with the backlog of paperwork, and to speed up scheduling so that the old hours spent sorting through pieces of paper are now down to a minimum, leaving more time to deal with important matters.

What next?

I have only found one problem: My copy of Print Shop seems to go missing quite often. Simon has learnt very quickly how to use AppleWorks and other programs, which is due to hands on experience, I would say, although sometimes I have to lock my disc box to keep hands off!

Where do we go from here? We are hoping to expand our office system with a hard drive, extended memory and hopefully a Flipper card. All the different areas in which AppleWorks is used tends to spread over several floppies and could be managed better on a hard drive. The Flipper card would be wonderful for using enhancement products like Sensible Speller/Grammar and such like.

One main aim for the future is the possibility of putting live graphics into the video coverage of the races, similar to those seen in American football. These would be projected with the pictures from the cameras on to the video screens during the show.

With the wonderful graphics capabilities of the IIGs or the Mac, why shouldn't we do that with an Apple?



A six ton metal bridge links the tracks across the stage

AppleUser SPECIAL OFFERS!

The first Apple User Games Disc was one of the most popular packages we've ever offered our readers. Now comes Apple User Games Disc No. 2 – more great games that we thought were ideal but which were just too long to be printed in the magazine. And the price is still £5.95 for 7 games – that's just 85p a game!

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ALIEN ZAP – Good, old-fashioned machine code arcade game by Peter Ibbotson. Clever Apple graphics, and plenty of action.

SATELLITE CONTROL – A game of skill on the hi-res screen by Edwin Long. You're challenged to change the shape of a shuttle's orbit.

LIFE – This ubiquitous game has seen many forms. This latest, by Gerrard Manning, uses the hi-res screen to create new challenges.

TYPING TEST – A nice, simple game from Lawrence Tan, but one that will help improve your typing and keyboard skills. Ideal for beginners.

CARD TRICK – The computer is an excellent medium for performing feats of sleight of hand. Play tricks with cards with J. Taylor.

NOUGHTS & CROSSES – The graphics may not be sensational, but Frank Lewis shows how to play a fast game using only the lo-res screen.

THE PERILS OF PRINCESS EMMELINE – Denise McKnight invites you to face unknown foes as you immerse yourself in this adventure.

MURDER – Can you deduce who the murderer was? Roger the Lodger, maybe? And what weapon did he use – an exploding cigar?

BOMBER – Flatten the deserted city to provide a landing strip for your plane. If you're in a destructive mood you'll have a field day!

PELMAN – A two-player game of memory. Pit your wits against another human for a change – and let your Apple be the referee.

DINGHY SAILOR – We've all seen flight simulators. Now for something completely different. See how you can handle this sailing dinghy.

NIM – It may look like a straightforward game. In fact, nothing could be simpler. But YOU try beating this challenging program.

MASTERMIND – No, not the black leather chair version, but the much older, brain-bending code-breaker. It's just as compulsive!

WORD SEARCH – Hook up your printer and use this program to create your own word square puzzles to try out on your friends.

3D ENERGY FIELD – A superb three dimensional maze game. Can you escape from the labyrinth or will the energy field catch you?

AppleUser GAMES DISCS No. 1

STILL
AVAILABLE

TO ORDER PLEASE USE THE FORM ON PAGE 65

The gentle art of directional printing

LAST month's article described how to place level text on a drawing with the LB (Label) command. Directions of printing other than level are possible by first implementing the command DI (Direction). DI requires two parameters, run and rise: A horizontal followed by a vertical dimension which together define the angle at which any following lines of text will be plotted.

It is normal practice to use run and rise values that lie between zero and one. The horizontal default is thus DI 1,0 while DI 0,1 gives an ascending vertical and DI 0,-1 a descending vertical. Parameters 0.3,-0.2 give text sloping downhill at 1 in 1.5 (34 degrees below horizontal). Parameters -1,0 will give inverted text, written from right to left.

Modifying angles

A sister command, DR, works in a similar way except that it modifies the angle according to the P1 and P2 settings. Either PRINT "DI;" or PRINT "DR;" without parameters restores subsequent text plotting back on to the level.

When text is being laid out on a plan,

Geoffrey Jago with part 4 of his series on plotter programming techniques

help is provided by another command: CP (Character Plot). This moves the pen in exact steps of one character space up, down, left or right as set by SI, by SR or by default. CP is followed by two parameters: X moves, Y moves. Positive values move the pen right or up, negative values move it left or down. CP also conforms to any special direction previously set by DI or DR.

As well as printing a string of characters with the LB command it is possible to print other characters one at a time for special applications. When plotting graphs and scatter plots it is sometimes useful to distinguish between overlaid sets of data by plotting each set with a different symbol — Figure 1 illustrates the effect.

The SM command accepts, as its single parameter, one printable character. X, * or + suggest themselves as markers for points,

but alphanumerics are effective when several graphs are overlaid as in the diagram. Nearly all the keyboard characters can be used except semicolons, which the system uses as command input terminators.

The SM command is illustrated in Listing 1, which was used to draw Figure 1. Once PRINT "SMA;" for example, is sent to the plotter, the character A will appear wherever a point is defined by a PA (Plot Absolute) or PR (Plot Relative) command. Sending PRINT "SM;" switches the facility off.

DIY characters

A more interesting command allows you to make up your own symbols which can be plotted like other characters, albeit one at a time. Such user-defined characters can have their shapes modified by the commands which affect the alphanumerics that the LB command plots, and so independent variation of width, height and slope is possible for UC shapes as well as for standard text. Indeed, when a UC shape appears too tall, fat or sloping it is because SI, SR or SL have been set to suit the lettering.

The command allowing DIY shapes is UC (User Defined Character). The letters UC are immediately followed by a series of data numbers separated by commas and terminated by the ubiquitous semicolon. These numbers are a series of X and Y pairs each representing distances relative to the previous position.

For instance, a set of four numbers (two X,Y pairs) UC 0,-6,3,0; would move the pen down six units from its starting point, and then right three units to form a letter L. To keep a user-defined character about the same size as a letter and so avoid overlapping, the pairs of relative movements should keep the pen within a grid of 6 vertically by 16 horizontally, but much larger shapes using relative moves of up to 98 units are possible.

Pen picking

What if you want to pick the pen up temporarily in the middle of a shape? This is possible by injecting a large negative number in between the pairs for pen-up or a large positive number for pen-down. Pen-up is -99 or less and pen-down is 99 or more. Any number between these values is read as one of an X,Y pair.

In fact the starting condition is pen-up so ▶

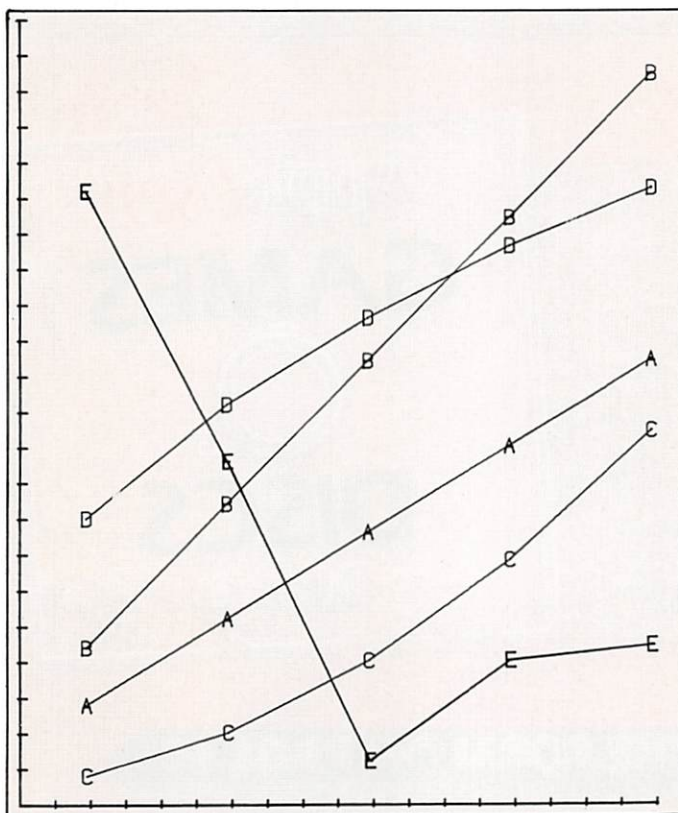


Figure 1:
Distinguishing
between
overlaid sets
of data by
plotting with
different
symbols

◁ a 99 must be sent at or near the start or the pen will work diligently in mid-air. After successfully drawing a shape the pen is picked up automatically, so a final -99 is unnecessary.

As an example, the following would draw a rectangle 5 units high by 7 across:

```
PRINT "UC 99,0,5,7,0,0,-5,-7,0;"
```

The four X,Y pairs tell the plotter: Up 5, Right 7, Down 5, Left 7

This may look a little cumbersome at first sight but if the data is stored in a text string and saved to disc file life becomes simpler. This works:

```
CHS = "99, 0,5, 7,0, 0,-5, -7,0;"
PRINT "UC" CHS
```

How big your tracery appears on paper will depend upon the plotter used and the settings of character size. Losing track of which is an X and which a Y, perhaps by inadvertently adding or subtracting a comma, can lead to bizarre shapes with an accompanying danger of profanity. It can

help to leave spaces between X,Y pairs as I have done in the line above. The plotter should ignore spaces without being foxed.

Demonstration of the UC & CP Commands

XYZ
+O★

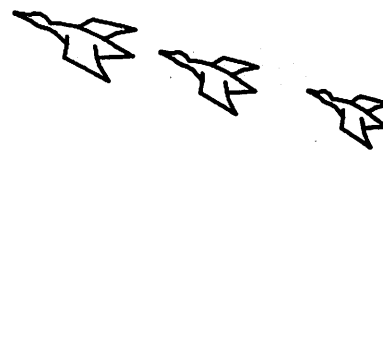


Figure II:
Drawing from
Listing II –
repeated plots in
different sizes

When the codes are tried out the shape seldom comes out exactly as planned and some modification is usually necessary. ▷

Listing I

```
100 REM LISTING 1 - SYMBOL
    MODE
110 REM (C) 1987 G.JAGO
120 CS(1) = "A"
    :CS(2) = "B"
    :CS(3) = "C"
    :CS(4) = "D"
    :CS(5) = "E"
130 FOR J = 1 TO 5
    : REM GENERATE 5 SETS OF
      F SPURIOUS DATA
140 D(J,1) = J * 6
150 D(J,2) = J * 10
160 D(J,3) = J * J
170 D(J,4) = INT (
    SQR (J) * 19 + .5)
180 D(J,5) = INT (.5
    + ABS ( SIN (J)
    / J * 50))
190 NEXT J
200 PR# 2
    : REM ENABLE PLOTTER
210 PRINT "IN;SP1;"
    : REM INITIATE PLOTTER -
      SELECT PEN NO. 1
220 PRINT "SI.25,.4;"
    : REM SET CHARACTER SIZE
230 FOR J = 1 TO 5
    : REM LOOP TO WORK THRO
      UGH 5 GRAPHS
240 PRINT "SM;CS(J);"
    : REM SET NEXT SYMBOL
250 PRINT "SPJ;"
    : REM SELECT PEN NO. J
260 FOR K = 1 TO 5
    : REM LOOP TO DRAW GR
      APH
270 PRINT "PA*K * 1200"
    ,D(K,J) * 160;PD;
    : REM DRAW TO NEXT PO
      INT IN THE GRAPH
280 NEXT K
290 PRINT "PU;"
```

```
: REM PICK PEN UP AFTER
  EACH GRAPH
300 NEXT J
310 PRINT "SM;"
    : REM SWITCH OFF SYMBOL M
      ODE
320 PRINT "SP0;"
    : PR# 0
    : REM PEN HOME & DISABLE
      PLOTTER
```

Listing II

```
100 REM DEMONSTRATION OF PL
  OTTER COMMANDS UC AND C
  P
110 REM (C) 1987 G.JAGO
120 REM FIRST LOAD 8 USER C
  OMMAND SHAPES
130 CS(1) = "99, 10,10, -99
    ,0, -10,99, -10,10;"
140 CS(2) = "5,0, 99, 0,5,
    -5,5, -99, 10,0, 99, -5
    ,-5;"
150 CS(3) = "0,10, 99, 10,0
    , -10,-10, 10,0;
160 CS(4) = "5,0, 99, 0,10,
    -99, -5,-5, 99, 10,0;"
170 CS(5) = "3,0, 99, -3,3;
    0,4, 3,3, 4,0, 3,-3,0
    ,-4, -3,-3, -4,0;"
180 CS(6) = "99, 5,10, 5,-1
    0, -10,6, 10,0, -10,-6;
    "
190 CS(7) = "-99,0,35,99,1,
    0,5,-1,2,1,2,0,3,-2,2,-
    3,3,0,9,-2,4,3,2,1,12,-
    3,6,-2,-8,-2,-5,-3,5,-6
    ,7,-5,-15,-1,-1,6,1,-6,
    1,-4,4,-8,-19,12,1,7,0,
    4,0,-4,-5,6,-3,2,-3,1,-
    2,1,-2,2,-7,4,-99,27,-7
    ,99,11,-6;"
200 CS(8) = "99,5,30,-5,12,
    -6,4,2,10,6,3,-2,3,1,7,
    5,2,5,-2,3,-4,0,-4,-10,
```

```
-5,3,-7,3,-1,4,13,48,19
,-1,2,-36,-14,-5,-6,-5,
-15,-7,-7,-11,5,-99,23,
16,99,7,1,9,8,0,2,5,0,-
14,-17,-10,-2,8,-16,-2,
-27,4,0,-10,-3,-2,18,-8
,-24,3,-3,-10,2;"
```

This is one of hundreds of
programs now available
FREE for downloading on

MicroLink

```
210 REM ***** END OF
  UC SHAPE INPUT
220 PRINT "CP DEMONSTRATION
  "
    : PRINT "*****"
230 INPUT "GIVE THE X,Y POS
  ITION ";X,Y
    : REM WHERE TO PUT IT ON
      THE SHEET
240 PR# 2
    : REM ENABLE PLOTTER
250 PRINT "SP3;"PA"X",Y;"
    : REM SELECT PEN 3 & MOVE
      TO START
260 PRINT "SI;"
    : REM DEFAULT LETTER SIZE
270 PRINT "LBDemonstration
  of"; CHR$ (3)
    : REM WRITE TITLE WITH LB
      COMMAND
280 PRINT "CP;"
    : REM GIVE LINE FEED & CA
      RRIAGE RETURN
290 PRINT "LBthe UC & CP C
  ommands"; CHR$ (3)
    : REM WRITE TITLE WITH LB
      COMMAND
300 PRINT "PU;"
```

```
310 PRINT "CP-13,-2;"
    : REM MOVE BACK 13 AND DO
      WN 2 SPACES
320 PRINT "PR0,0;"
    : REM RESET START OF FUTU
      RE LINES TO THIS X POSI
      TION
330 PRINT "SI.1 ,.2 ;"
    : REM MAKE LETTER SIZE SM
      ALLER
340 FOR J = 1 TO 3
    : PRINT "UC;CS(J);"CP
      2,0;"
    : NEXT
    : REM PLOT UC CHARACTERS
      1,2 & 3 WITH TWO SPACES
      IN BETWEEN
350 PRINT "CP;"
    : REM GIVE LINE FEED & CA
      RRIAGE RETURN
360 FOR J = 4 TO 6
    : PRINT "UC;CS(J);"CP
      2,0;"
    : NEXT
    : REM PLOT UC CHARACTERS
      4-8 WITH TWO SPACES IN
      BETWEEN
370 PRINT "PU;"PR100,-400;
    "UC;CS(7);"PU;"
    : REM PLOT RIGHTHAND DUCK
380 PRINT "SI.12,.23;"PR-2
    50,50;"UC;CS(7);"
    : REM PLOT MIDDLE DUCH A
      LITTLE LARGER
390 PRINT "SI.15,.25;"PR-2
    50,50;"UC;CS(7);"
    : REM LEFTHAND DUCK LARGE
      R STILL
400 PRINT "SI.08,.25;"PR-2
    00,-400;"UC;CS(8);"
    : REM MAKE NARROWER & PLO
      T GUN
500 PRINT "SP0;"
    : PR# 0
    : REM HOME THE PEN & DISE
      NABLE PLOTTER
510 END
```

◁ One thing to remember when beginning to edit shapes is that all X,Y pairs in the chain are relative moves. Editing would be simpler if they were absolute coordinates from a single reference point because changing one would not affect the others. As it is, the alteration of one pair moves all the subsequent points by the amount of the alteration.

Thus if you wish to lengthen a nose down and to the right, all the subsequent part of the individual's silhouette will be similarly shifted. So to alter only one apex of a shape, first make the change and then apply the same change to the next pair in a negative sense – then that point and all subsequent ones will stay where they were.

Figure 11 was drawn from Listing 11 to illustrate the use of the LB, CP and UC commands. The UC shape codings are first stored in the CS array and the program operation is explained in the REMarks. Codes CS (1) to CS (6) are fairly simple and the curious with supplies of squared paper will be able to decode them into the six symbols shown immediately below the title text [X, Y, Z, plus sign, octagon and five-pointed star]. These six all lie within a grid of 10 by 10.

To illustrate more complex shapes on a wider grid the supplement to Listing 11 of lines 190, 200 and 370-400 was written to produce the graphics in the lower part of the diagram. The use of repeated plots of a single shape in different sizes suggested a display of the popular ceramic ducks. Shape CS (8) was later added in deference to those who have strong views on wall plaques.

Ticking off axes

The axes with tick markings in Figure 1 were produced with the help of two more commands that draw X-ticks and Y-ticks respectively and are suitably named XT and YT. They require no parameters and are merely followed by a semicolon.

When drawing axes the pen is sent to each tick intersection via PA or PR commands within a loop and at each intersection the command XT; (vertical tick) or YT; (horizontal tick) is sent to the plotter.

```
PRINT "PA" X "," Y ";XT;"
```

An associated command, TL with two parameters controls the length of the ticks, and which side of the axis line they are drawn or whether they are drawn crossing the line. The first parameter defines the tick length upwards from the X axis or right from the Y axis while the second parameter deals similarly with the ticks on the other side of the line. In this way a variety of styles are possible.

XT and YT may also be used to draw grids or tables because their lines can be extended up to the whole span of paper

available. The parameter value is read by the plotter as a percentage figure of the whole pen travel over the platen or as limited by the settings of points P1 and P2. A parameter of 100 therefore means all the way at the current setting. For axis ticks, 0.5 gives about the right length.

Circles arcs 9 polygons

The plotter language caters for circles by the command CI which for most work requires a single parameter, the radius. The circle is drawn taking its centre as the current pen position. Most plotters in fact draw a polygon of 72 sides which is indistinguishable from a circle unless the figure is very large.

A second parameter can be used optionally which defines the angle subtended from the centre to the sides. This is input in degrees, five being the default which gives the 72-sided polygon. For better resolution for larger circles a smaller number can be set. On the other hand the same parameter set to 60 will produce a hexagon, 45 an octagon and so on, and this allows polygons to be drawn with the CI command.

Drawing sector (pie slice) outlines with the EW command was dealt with earlier in this series. It is also possible to draw an arc from the current pen position by the AA

(Arc Absolute) or AR (Arc Relative) commands. Both commands require three parameters but a fourth is optional. The usual commas separate the parameters and a semicolon rounds the commands off.

The first two are X and Y coordinates which with AA are given as an absolute position from the plotter's base point, but with AR are distances relative to the pen position. Either way the radius of the arc is defined by the distance between the X,Y point and the pen position, which is the starting point.

The third parameter is the centre angle of the arc in degrees, which tells the plotter how far around to draw. This can be any number between -360 and 360. Positive numbers draw the arc anticlockwise from the pen position. As with the CI command the arc is resolved into many small straight lines subtending, as the default, five degrees at the centre of the circle.

If finer resolution is required the fourth, optional, parameter may be added as an integer between 1 and 4 to control resolution. Numbers higher than five are also legal and will cause the "arc" to be made up of longer straight lines and this facility may be used for special applications.

● Next month's article in this series will give details of how to get your plotter to talk back to you via yet more plotter commands. □



Seeing is believing

A COMPACT device combining a solid state camera with a control computer for less than £500 has been launched by Micro-Robotics.

The Scorpion Vision system, linked to an Apple via an RS232 interface, is suitable for use on a production line for selecting or rejecting parts, and in the laboratory for measuring applications. The system is currently being used to monitor the growth of seedlings, calibrate car speedometers and to investigate the various applications of structured lighting.

The microprocessor is simple to pro-

gram, using its own on-board high level language. Similar to Pascal, this incorporates a number of commands to capture and analyse scenes viewed by the camera.

The Scorpion micro-processor has a 32k rom and 24k ram, plus numerous interfaces for linking the system with other control equipment.

Contact: Micro-Robotics, 39 Springfield Road, Cambridge CB1 2LG.
Tel: 0223 462212.

Graphic descriptions

IF you're familiar with Cricket Graph you'll know that it allows you to represent data as various kinds of pie chart, histogram, line graph, and so forth. With such a good package already on the market, you might be tempted to question Cricket's wisdom in releasing a histogram-only package. I know I was.

However, if you've read a newspaper in the past few years, you might have some idea of the reason behind the release. You know all those histograms with the bars made up of little pictures? That's right, the car sales figures with little cars representing the values, or the comparative unemployment figures with little men standing in lines.

It's those type of histograms, or pictograms as the manual calls them, which Pict-O-Graph lets you produce.

Image library

As you might expect from a program that will set you back something in the region of £200, there are several variations on this theme. Your bars can be horizontal or vertical, and for each orientation there are three possible styles: Stretched, where a single car is dragged out to the appropriate length, clipped, where a line of separate people are drawn to the required length, and filled, where the bottles are filled to the relative proportions.

You're not limited to cars, people or bottles, of course. There is a whole library of images supplied in the package, and if you

David Russell turns facts into figures with Pict-O-Graph

don't like them you can design your own with the built-in fatbits-type pixel editor.

The program will accept Cricket Graph data files (or StatWorks files for that matter), as well as SYLK files. Alternatively, you can enter the data from the keyboard in the same way as Cricket Graph and StatWorks – pressing Return moves you down a column, pressing Tab moves you across a row. It will also allow various transformations to be performed on the data.

In fact, the program interface is remarkably similar to Cricket Graph and I wouldn't be surprised if the same code lies at the heart of both. Double-clicking on

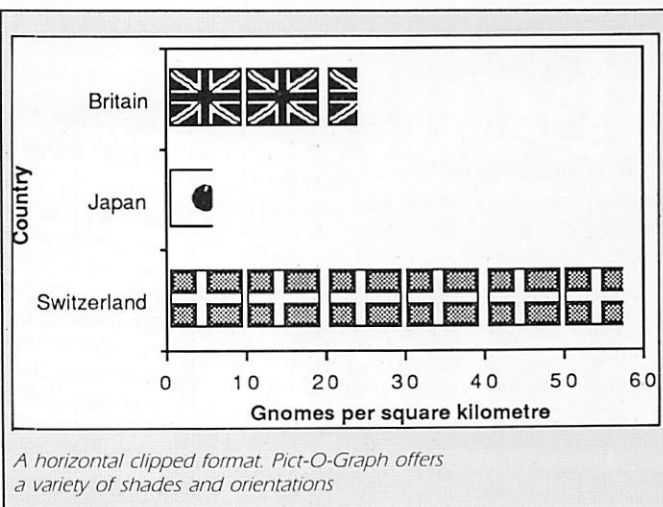
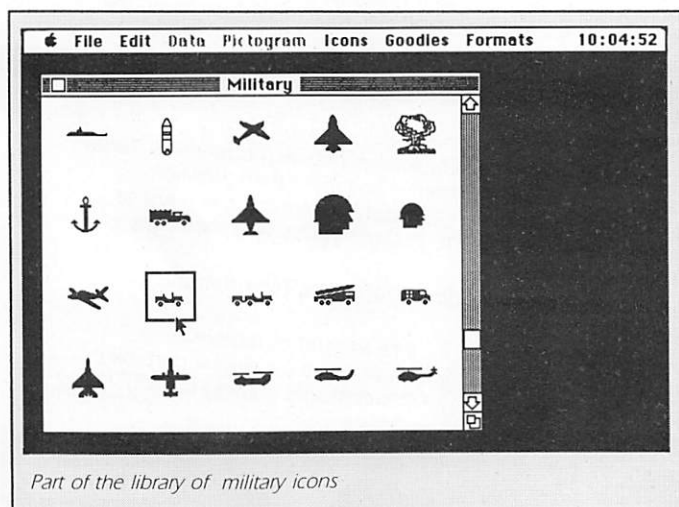
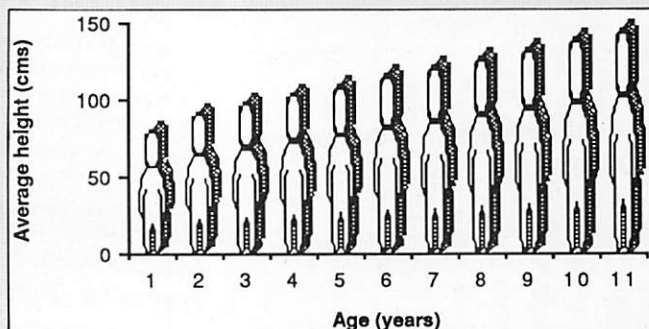
practically anything brings forth a dialog box where, for example, the axes can be labelled, the style, font and size of text chosen and so forth.

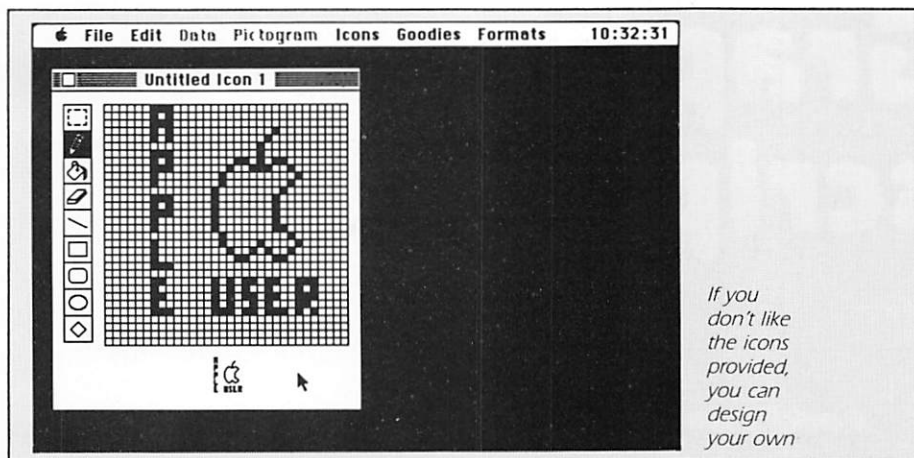
If you've got an ImageWriter II fitted with a colour ribbon, then the package will support colour printing. The manual also mentions that enhanced versions of the software are available to drive certain high quality colour film recorders and printers, but I didn't investigate this further. I must admit the only time I've used a colour ribbon in my ImageWriter has been to check that software which claims to support it actually works.

Exporting files

If your pictogram is destined to be incorporated in your latest report, there are two ►

A vertical stretch format with depth added and the plotting frame removed





If you don't like the icons provided, you can design your own

methods of exporting it. The first is the usual copy-to-clipboard, paste-in-scrapbook method which can then be transferred to MacPaint or straight into your word processor document. Alternatively, you can save the file in PICT format and then move it into MacDraw or MacDraft for further manipulation.

Pict-O-Graph worked well and did everything it claimed to do, and if you really want to produce histograms I can recommend it. For my own part, I could probably manage to live without it. Cricket Graph satisfies practically all my requirements, and

I don't think I could justify paying the extra £200.

The ability to produce pictograms would have been nice as an additional option in Cricket Graph: It's a pity Cricket decided to produce another package rather than upgrade the existing one.

Product: Pict-O-Graph
Price: £201.25
Supplier: Cricket Software/Heyden & Son,
Spectrum House, Hillview Gardens,
London NW4 2JQ
Tel: 01-203 5171

Crystal clear

NEW releases from Great Wave Software include Crystal Paint, a mouse-driven graphics tool for the Macintosh with easily-produced symmetry as its key feature.

Aimed at everyone from children to graphics designers, Crystal Paint includes two different drawing modes to allow for symmetry based around a centre (ideal for drawing flowers, for example), or on variations on the plane – pattern transformations which resemble wallpaper.

These transformations “represent the two-dimensional ways in which crystals replicate” – hence the title.

Crystal Paint can be used in conjunction with other write, paint and layout programs and output can be to either ImageWriter or LaserWriter.

Products: Crystal Paint,
Prices: tba
Supplier: Great Wave Software, 5353
Scotts Valley Drive, Scotts Valley, CA
95066.
Tel: 0101 408 438-1990.

The truth about TELEX

How much does it cost to go on Telex?

You could go the conventional way and buy a dedicated Telex machine. The cheapest will cost you £1,604 (the Whisper), the dearest £2,892 (the Cheetah). You will also need a separate telephone line, costing £101 to install, plus £404 a year rental. That's a total outlay over the first year of a minimum of £2,109. (All prices include VAT.)

Or you could do what more and more Apple users are doing – use your Apple II or Macintosh to double as a Telex machine. And just use your ordinary telephone!

How do I turn my Apple II or Macintosh into a Telex machine?

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How to join:
See Page 4

Dave Russell
tests a package that
gives MacWrite a
mailshot option

Economical mail merging

WE'VE all had them, haven't we? Those letters which tell us that, yes, Dave Russell has been personally selected from all the residents of Haddock Gardens to receive a once-in-a-lifetime offer. Even though it looks individually typed, it's the third once-in-a-lifetime offer you've had this week and you know all your neighbours have had the same thing. You've been mail-merged again!

Joking aside, the mail merge technique has become an important weapon in the war which is business, but it also has applications in fields like educational administration – in fact anywhere that roughly similar letters need to be sent to several people.

It's a technique which blossomed with the advent of word processing, and MergeWrite from Software Discoveries offers a means of using the technique to anyone who has a copy of MacWrite.

The basic process involves a form letter containing the text interspersed with field names, and a database file which is merged with the form letter to provide the filling for the fields. MergeWrite lets you use MacWrite to create both the form letter and the database.

Suppose you've developed a new grunge-pin for the patent Scrobulator machine which you sell. Naturally you want to tell all your customers about it, so you write your form letter something like that shown in Figure 1.

The international quotation marks are used to indicate a field from the database. The first line of your database document will contain the field names, and not unnaturally these must be the same as

Product: MergeWrite
 Price: £57.44
 Supplier: Software Discoveries/Heyden, Spectrum House, Hillview Gardens, London NW4 2JQ
 Tel: 01-203 5171

those used in the form letter.

Of course, your database can contain fields which aren't used in the form letter. These and any other fields can be used as a basis for selecting a record for printing. For example, not all your customers may have a Scrobulator. An "item" field could contain the name of the equipment bought, and only those records where item =

Scrobulator could be selected (see Figure II).

In fact, you can be even more sophisticated than this because MergeWrite will let you specify alternative forms of the text to be chosen on the basis of the contents of particular fields. This is achieved with an IF-THEN-ELSE conditional structure, and these can be nested up to 10 levels deep. The example used in the manual is a threatening letter, the extent of the threat being decided by the size of the amount owed.

It's easy to prepare a database document in MacWrite. The field names form the first row, with fields being separated by tabs and records being ended with a Return (see Figure III). Of course, you may have already ▽

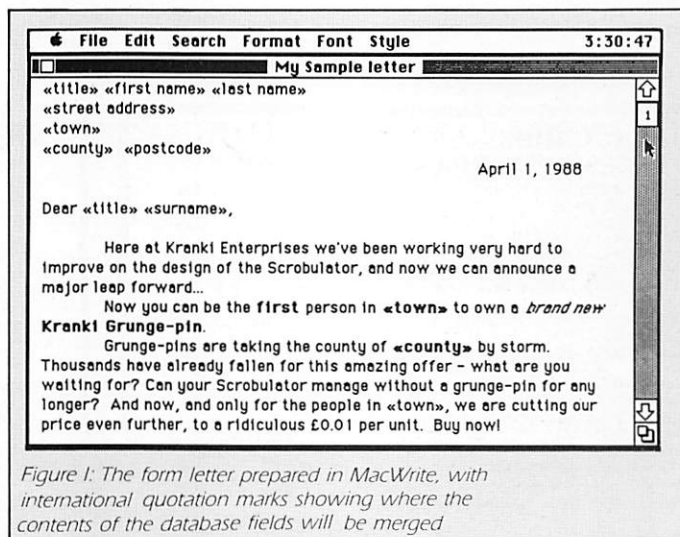


Figure 1: The form letter prepared in MacWrite, with international quotation marks showing where the contents of the database fields will be merged

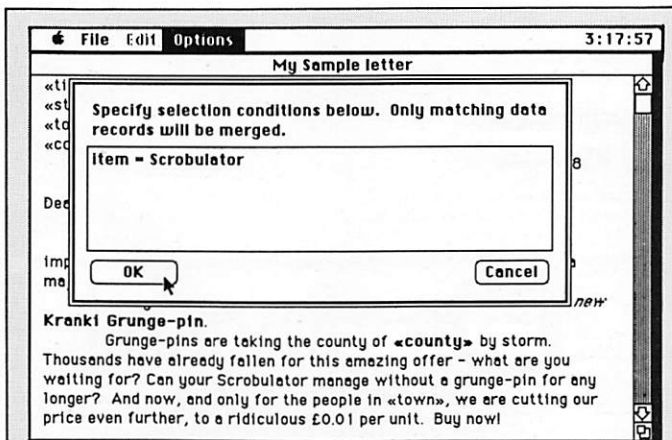


Figure II: Using a field as the basis for selecting records from the database. Only the appropriate records will now be used for printing. The 'Item' field need not be used in the form letter

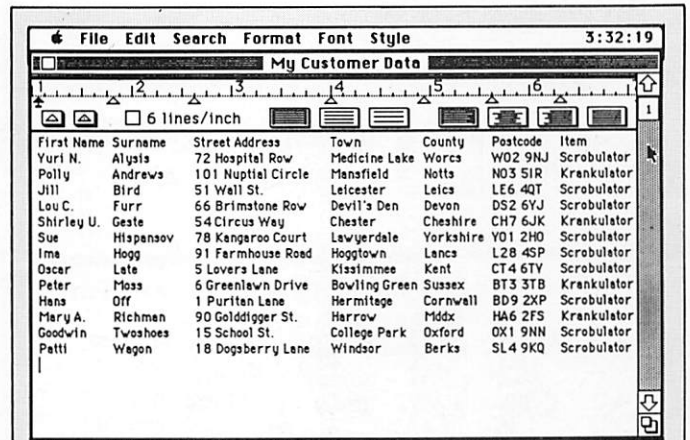


Figure III: The database document, prepared in MacWrite. The first line contains the field names, which must correspond with those used in the form letter

set up a database in a different application. If so, all is not necessarily lost. As long as the application will save the database in Ascii format, MergeWrite may be able to read this version of it.

In order to test this, I saved a Microsoft Works database of mine using the Export File option. MergeWrite seemed to cope with this perfectly well. In fact Works has its own form letter facility so somebody with this package wouldn't need MergeWrite. Having said that, MergeWrite is simplicity itself to use.

Although it's not a database package, it will allow sorting of the records for printing (see Figure IV). For example, you could use the sort facility to print out the letters in alphabetical order of country in the address. This could well be useful when it comes to mailing the letters. You can even sort on more than one field – say, by last name within country.

Printing out

Once you've got the form letter and database document sorted out, printing is equally simple. You can either set the program to churn through non-stop, or you can be prompted before printing each

copy. In this case, the program shows you the data about to be used and asks you to either confirm printing or skip this data. In this way, you can weed out any oddities, although at the cost of having to stay there during the print run.

MergeWrite isn't the most powerful package I've ever used, but it works well and does everything it claims to do. The 22-page manual is concise but shows signs

of having been rushed – for example, page 7 ends mid-sentence but page 8 starts with a new topic.

However, if you're trying to run a small business on a shoe-string or struggling to keep up with college administration while facing yet another cut-back in funds, a package like MergeWrite could well make your job easier without requiring you to spend a long time learning to use it. □

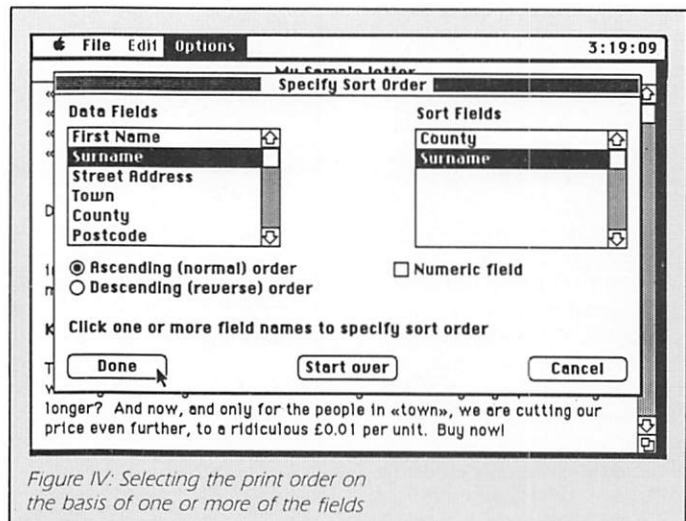


Figure IV: Selecting the print order on the basis of one or more of the fields

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AppleUser

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A full index of all Apple and Macintosh products reviewed in Apple User appeared in last month's issue.

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Appletip



This subroutine reads the keyboard and converts lower case text to upper case. To remove the temptation to press CR, no cursor is displayed on-screen.

It was used for multiple choice menus, where minimum operator input was required, and characters could be entered as upper or lower case. It returns with a character string, KS, and a number, KD.

```

499 REM Subr to read Kbd
500 POKE 49168,0 : REM CLR Stb
505 KD = PEEK (49152) : IF KD < 128
    THEN 505 : REM Wait for key
510 POKE 49168,0
515 KD = KD - 128 : IF KD > 96 THEN
    KD = KD - 32: REM If L/C make U/C
520 KS = CHR$ (KD) : KD = VAL (KS)
525 RETURN
  
```

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Transfer fees

THE review of ProLink (*Apple User*, October 1987) confirmed my experience that it is easy to transfer AppleWorks word processing files to MicroSoft Word or Works. But as N.S.R. Duffin found (*Feedback*, December 1987), it is not easy to transfer AppleWorks spreadsheet files to Excel or Works.

ProLink will not read AppleWorks spreadsheets files directly; it will only read text, Ascii, DIF and SYLK files. A client of mine had many AppleWorks spreadsheet files to transfer, so I needed to find a way.

First, I saved an AppleWorks spreadsheet as a DIF file. Excel and Works cannot read DIF files, but I transferred it to Dos 3.3, loaded it into VisiCalc, then read the VisiCalc file into Multiplan (on an Apple II), saved the Multiplan file as a SYLK file, transferred it to Prodos and used ProLink to transfer it to the Mac where it could be read directly by Works or Excel.

But DIF files do not save the formulae so these had to be re-entered at some stage, either within VisiCalc, or in Multiplan before creating the SYLK file, or in Excel or Works. Moreover, some of the AppleWorks files were created on an Apple II with extra memory, so they were too large to read into Multiplan which offers only 35k in an Apple II.

Next I tried transferring an AppleWorks spreadsheet via the clipboard into an AppleWorks word processor file. However, when I transferred this file with ProLink and loaded it into Excel, the contents of the columns of each row of the original worksheet did not appear in separate columns – they were all in the first column with text spilling over into others.

Like Mr Duffin, I realised that this problem could be solved by using a word processor to insert tab characters, but I felt that this method was too tedious.

Ascii files?

In an attempt to find alternative methods, I tried printing an AppleWorks spreadsheet to the disc as an Ascii text file. When I transferred this file by ProLink and read it into Excel, the contents of each cell across Row 1 of the original worksheet appeared in successive cells down Column A, followed by the content of Row 2, and so on.

In the process of printing to disc, the formulae were converted into answers. In Excel, I used the Transpose command to transfer the data out of Column A into the correct rows, then I used the Copy and Paste Special (Values Only) commands to fix the data into the cells.

Although this method was tedious, it

Geoff Wood converts AppleWorks spreadsheets to Excel

was quicker than retyping the data and probably less prone to error. I tried to transfer the formulae by using the Open-Apple+Z command in AppleWorks to display the formulae, then printing the file to disc, transferring it to the Mac and reading it into Excel. But this file proved to be exactly the same as the previous Ascii file: The formulae were converted into values.

By now, the problem had become a challenge. Out of curiosity, I went back to the AppleWorks word processor file and tried importing it into the spreadsheet program of Microsoft Works as a text file. Lo and behold, it came up with most of the labels and values in the right cells.

Like the DIF method, this process did not transfer the formulae, only the values. But whereas the DIF method converted the answers to the formulae with several decimal places, this process converted with the values as displayed.

Fortunately, many of the formulae simply added up the columns and rows so it was easy to reconstruct them by entering a formula at the bottom of one column or the end of one row and copying them across into the other columns or down into the other rows.

Problems arose where there were empty

cells or centred labels in the original worksheet, but these could be overcome by modifying the original. Also, I found it best to delete narrow columns which contained only demarcation symbols. The Works file could be transferred to Excel as a SYLK file.

This method was fine for small files (though you may need to set the platen width to 13.2in and the characters per inch to 17) but it would not work with large files because the AppleWorks clipboard is limited to 250 lines. I found that I could transfer large files in sections, but it was a tricky process. Recent versions of Applied Engineering's modified version of AppleWorks allow up to 2000 lines on the clipboard, but you need a RamWorks or UltraRam card.

Try anything!

Then I remembered that Works and Excel can read files created by Lotus 1-2-3 with the suffix .WKS, so I used VIP Professional (*Apple User*, July 1987) to convert an AppleWorks spreadsheet to a .WKS file. Unfortunately, ProLink would not transfer the .WKS files to the Mac.

I tried using Access II and the communications program in Works with the Apple II and Mac connected by cable. The .WKS file transferred all right, but Excel would not read it.

In a "try anything" mood, I printed the VIP Professional file to disc as a file bearing the suffix .PRN. This file transferred all right with ProLink, and when I imported it into

File: SUMMARY		REVIEW/ADD/CHANGE			Escape: Main Menu
=====A=====	B=====	C=====	D=====	E=====	F=====G=====
1 SUMMARY	Jan	Feb	Mar	Totals	
2					
3 Dept A	1100	1000	1200	+B3+C3+D3	
4 Dept B	800	700	900	+B4+C4+D4	
5 Dept C	1400	1300	1500	+B5+C5+D5	
6					
7 Totals	+B3+B4+B5	+C3+C4+C5	+D3+D4+D5	+E3+E4+E5	
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					

A1: (Label) SUMMARY

Type entry or use @ commands

@-? for Help

The original AppleWorks spreadsheet, dumped, warts and all, with OpenApple+H

Works as a text file, most of the data came up in the right cells. However, as with the AppleWorks word processor method, the formulae were lost in the process.

Finally, I found an answer to transferring the formulae. An option within VIP Professional allowed me to print a file to disc with the formulae. When I transferred this file with ProLink and read it into Excel, the contents of each cell appeared down Column A – with the formulae. The contents of each cell were preceded by the coordinates of the cell and a colon.

Final touches

I tried again, but before reading the file to Excel via Works, I used Word 3 to strip out the coordinates and colons. I used the Transpose, Copy and Paste Special commands and found that this technique put the formulae into the right cells, but as labels.

It was then necessary to edit the formula by inserting = signs and replacing .. with : in SUM formulae. I went back to Word and edited the formulae, but found that after using Paste Special in Excel, formulae were converted to answers. I reverted to the

method that gave formulae as labels.

I wrote a macro to perform the Transpose, Copy and Paste Special commands but I still had to edit the formulae by hand.

To perform these methods of transferring files from AppleWorks to Excel you need VIP Professional and Microsoft Works as well as ProLink and a 3.5in drive on your Apple II. If you have many worksheets to transfer, it may be worth buying the programs. Alternatively, you could find someone with the programs and the right

Summary

	A	B	C	D	E
1	SUMMARY	Jan	Feb	Mar	Totals
2					
3	Dept A	1100	1000	1200	=B3+C3+D3
4	Dept B	800	700	900	=B4+C4+D4
5	Dept C	1400	1300	1500	=B5+C5+D5
6					
7	Totals	=B3+B4+B5	=C3+C4+C5	=D3+D4+D5	=E3+E4+E5

The finished spreadsheet transferred to Excel, with formulae displayed

hardware, and pay them to convert your files.

I felt that there must be an easier way, and eventually found a dealer who said that a program called File Exchange (to be released with the new system folder for the Mac) would transfer all types of Prodos files to the Mac. I was told that AppleWorks spreadsheets could be transferred and read by Works.

I can't wait to get my hands on this program to see if this is the easy answer. □



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Into the fifth generation

THERE is a joke that says that the second-worst thing that can happen to you is that you don't get what you really want: The worst thing is that you get what you want, and that you don't like it.

For some time now, the Mac operating system has been criticised for its single-tasking operating system, with systems like the Amiga held up as an example of what it ought to be like. With MultiFinder, Apple has given its critics what they want, but I don't suppose they will be satisfied.

MultiFinder is an extension to the Finder that lets you open several applications (up to 30 if you have the memory) at once. It works like the Switcher – Apple's previous effort in this area – with each application maintaining its own windows in a separate layer. The difference is that the Switcher's layers are opaque so that you cannot see other application windows, but MultiFinder layers are transparent, so that windows belonging to other applications can be seen underneath those of the currently active application.

Like the Switcher, MultiFinder only allows the currently active application to take control of the menubar and to interact with the user. Unlike Switcher, MultiFinder allows other applications to continue to run if they do not need to interact with the user, and have been written to take advantage of this facility.

Installation

MultiFinder is distributed as part of the System software 5.0 package. This is (or should be) included with all new Macs, but if you already own a Mac, you can get the package from your Apple dealer for £35. Apart from MultiFinder, there is a new System, Finder, LaserWriter driver, ImageWriter driver, Font/DA Mover to list just a few things.

In short, it's a complete overhaul of the system software, and all MacPlus, Mac SE and Mac II owners should go and get a copy – you may be entitled to a free copy if you bought your Mac recently, so check with your dealer. Mac 512K (enhanced or otherwise), and Mac 128K owners are advised not to upgrade to the new system.

The System software 5.0 package is made up of four discs and a manual, and even without installation instructions, the Readme file on the discs and the similarity to previous system upgrade procedures makes it easy to see what to do. Briefly,

Sak Wathanasin sees if Apple's long-awaited MultiFinder lives up to expectations

● You boot from the Mac Tools 1 disc, and launch the Installer program in the Utilities folder. When the dialogue box appears, choose the appropriate installation script, then click the Install button.

You must use the Installer and not simply drag the System and Finder to your system discs because the three roms are different, and different resources have to be installed for each system.

● Boot from the Mac Tools 2 disc, and launch the Installer. When the dialogue box appears, choose the appropriate printers to be installed – you can select more than one by holding down the shift key while clicking – and click the Install button.

● Drag new versions of the system utilities, such as the new Font/DA Mover from the two Utilities discs to your working discs.

After installing the new system, simply restart the Mac with your new system disc, and MultiFinder will be started automatically. Like many other Macintosh programs, MultiFinder is hard to describe because of the way it uses graphics in its interaction with the user. Moreover, as with all good Mac programs, you are in control, and will no doubt find your own preferred ways of using the program – the best I can do is to describe some features of the system.

When MultiFinder starts up, it automatically starts up the Finder, and you are presented with the familiar Mac desktop. MultiFinder indicates its presence in two ways: It puts a small icon of the currently running application in the right end of the menubar (where the Switcher arrows used to go – see Figure 1 – and it puts an "About MultiFinder" item under the Apple menu, though you may have to scroll the menu to see it).

To start an application, you simply double-click on its icon. It puts up its menubar as with previous versions of the system, but a small application icon is displayed on the extreme right of the menubar. Instead of the application taking over the Mac screen completely, however, it opens any windows that it needs in a separate layer on top of any windows that may already be opened.

Inactive windows from other applications are visible in any part of the screen that isn't occupied by the top window. It's just like opening a desk accessory: Indeed, an entry for the application is inserted into the Apple menu.

With MultiFinder, you do not have to quit an application in order to start another. You just activate the Finder's windows by clicking anywhere in them and double-click on the application's icon as usual – you may have to open a few folders to find it. If there is enough memory, the application will be launched as described above.

You can see how memory is being used by selecting the "About Finder I" item from the Apple menu. Figure 1 shows a screen with three applications open: The Print-Monitor is active, with the Finder and Excel in the background. You can tell which application is active from the icon in the extreme right of the menubar, and from the "About I" item in the Apple menu.

Switching around

As with the Finder, only one window can be active (accept input) at any time, and it has its title bar highlighted. To activate another window, you just click in it, but with MultiFinder, the application that owns the window is reactivated or "brought to the foreground". All other open applications are said to be "in the background".

Another way of bringing an application to the foreground is to double-click its icon on the desktop – the icon will be dimmed because it is already open. A third way is to select its entry in the Apple menu. You can also switch between any open applications by clicking in the small icon in the menubar, which brings each application to the foreground in turn.

Switching between applications is pleasantly fast compared with having to quit to the Finder and launching another program. Switching to the Finder is very fast because it does not have to keep reading the Desktop file from disc, and it may be worth running MultiFinder just because of this.

Cutting and pasting between applications is particularly simple and is carried out just like cutting and pasting between two windows of the same application or between an application and a DA window.

You can change the amount of memory allocated to an application by clicking on the application icon while in the Finder, and selecting Get Info. The suggested memory size is displayed near the bottom ▶

◁ of the window and can be changed. This change is written to disc and is permanent, so you should have a backup copy of the application; there seems to be no way of changing the memory allocation for just one run.

The Background work

An application that is in the background cannot interact with the user, but it can carry on executing. For example, once a communications program has established the name of a file to transfer, it can do so in the background without having to interact with the user. Similarly, long calculations can be carried out in the background. Another example is printing (see later).

Only a few applications can take advantage of this feature now, but I would expect that to change as MultiFinder is more widely distributed. For now, Apple supplies the Print Monitor program that prints to a LaserWriter in the background, and there is a new version of VersaTerm which can transfer files in the background.

However, by setting the `canBackground` bit (bit 12 of the `SIZE P1` resource), you can make some existing applications run in the background. With this trick, I was able to use MacTerminal to transfer large files in the background while doing something else in the foreground. If you want to experiment with this, make sure that your discs are well-backed up because it can be risky.

The Print Monitor

Figure 1 shows a screen dump with the PrintMonitor window at the front. It shows which jobs are in the queue, and which one is currently printing – print jobs can be reordered just by dragging them to the appropriate position in the queue. You can also schedule them to print at a particular time or to be suspended indefinitely.

If you have background printing on when you print from an application, the print file is sent to disc. When this has been done, control returns to the application; the Print Monitor will run whenever the foreground application is idle.

It is a shame that the Print Monitor only works with the LaserWriter – it would have been more useful if it could have handled the ImageWriter as well. It seems to me that ImageWriter owners need this facility more than LaserWriter users since printing on the ImageWriter is so much slower.

One useful by-product of the Print Monitor is that it allows you to generate print files even though you don't have a LaserWriter. These files can then be taken to another Mac that is connected to a LaserWriter and printed.

To do this, first use the Chooser to select the LaserWriter and to specify Background printing. Then run the Print Monitor by

double-clicking on it. Now select Suspend printing from the File menu which stops it from trying to print on the LaserWriter that you don't have. From now on, every time you Print from an application, a file is created in a folder called Spool Folder in your System folder – make sure you have lots of disc space.

The spool files can be copied to a floppy and taken to a Mac that has a LaserWriter. If it is not running Print Monitor, start it up as described above. Now all you have to do is to drag your spool files into the spool folder on this Mac; the Print Monitor will notice that there is work to be done and will start printing automatically.

You run a DA in the usual way by selecting it from the Apple menu. However, all DAs are now run in a separate "application" called the DA Handler, and the DA's windows are kept in a separate layer belonging to the DA Handler.

DAs no longer share the memory partition of the application in which you started them. This means that they can remain open, even if you quit an application.

Unfortunately, some DAs expect to be able to access the host application's data and won't work if they are run in a separate layer. For example, the spelling checkers (such as MacLightning) won't work properly under the MultiFinder.

However, there is an undocumented "feature" that allows you to run a DA in the same memory space as the foreground application: Hold down the option key while selecting the DA – but make sure that the application has lots of memory. DAs started in this way will be closed if the foreground application quits.

Many software houses are bringing out MultiFinder-compatible versions of their products. For example, LightSpeed C version 2.13 does not quit when, using the Run command a program under development.

Instead, it launches the program in a separate MultiFinder partition this means that you can bring back the LightSpeed C window with a mouse-click and examine the source code while testing your program. Unfortunately, this feature is only available if you have 2Mb or more of ram.

MultiFinder can arrange to start up several applications or DAs automatically. You can either select several application icons while in the Finder, then choose Set Startup (all the icons must be in the same folder), or you can Set startup when you already have several applications or DAs open. There does not seem to be any way of attaching a document to a startup application.

It can be argued that the large "integrated" all-singing, all-dancing systems like Works or Jazz or even LightSpeed C are now made redundant by MultiFinder. I think that there is now a good case for developers to go back to the slim, do-one-job-well programs that were characteristic of the early Mac software, but to allow

"hooks" so that other programs can cooperate.

Wouldn't it be great if, for example, you could change a drawing in one window and that change was reflected in a document in which you had pasted the drawing? In other words, I think a "hot-view" feature should be a standard Mac facility. If Apple could provide support with operating system utilities and well-defined protocols, all Mac applications might be able to cooperate in this way in the future, just as they mostly all, support the standard "cut-and-paste" facility.

Some problems

MultiFinder needs a lot of memory: On my Macplus, after booting, the Finder's memory display shows only about 500k free. This means that it is only possible to open two or three programs at once, and that HyperCard, which needs 750k, will not run. Tested on a Mac II with 2Mb of ram, MultiFinder ran comfortably, but I think that a hard disc running MultiFinder is impractical if you do not have a hard disc.

Related to the memory problem is the question of DA partition size. Every open DA appears to be allocated some space on the system heap using an undocumented procedure. It would appear that large DAs such as Acta are not allocated enough space since it reports "out of memory" if I try to paste more than 4k into it.

I can get around this by forcing the DA to use the application heap space, but that means that I cannot use the DA when I switch to another application.

The initial launch of an application (or the opening of the first DA) can be slow even on a Mac II, as MultiFinder has to do a fair amount of work allocating memory partitions and so on. The window refresh can be a bit slow on a MacPlus when switching between applications: On a Mac II, it is almost instantaneous.

I have problems with some software that maintain a private clipboard. This problem is well-known to Switcher fans, but there does not appear to be a simple way around this problem in MultiFinder.

I also find that the desktop gets very cluttered even on a large screen – see Figure 1. One reason for this is that you have to keep opening folders to find the applications you want. I am not sure if the Switcher's opaque layers are not an advantage – perhaps it might be better to use these, but allow them to be sized and moved just like a normal Mac window.

Having an opaque window would benefit the desktop – the Finder's window layer. At the moment, if you switch to the Finder, its windows are brought to the top, but the trash can and disc icons remain covered.

This can make it difficult to copy files to or from a disc, for example, especially as

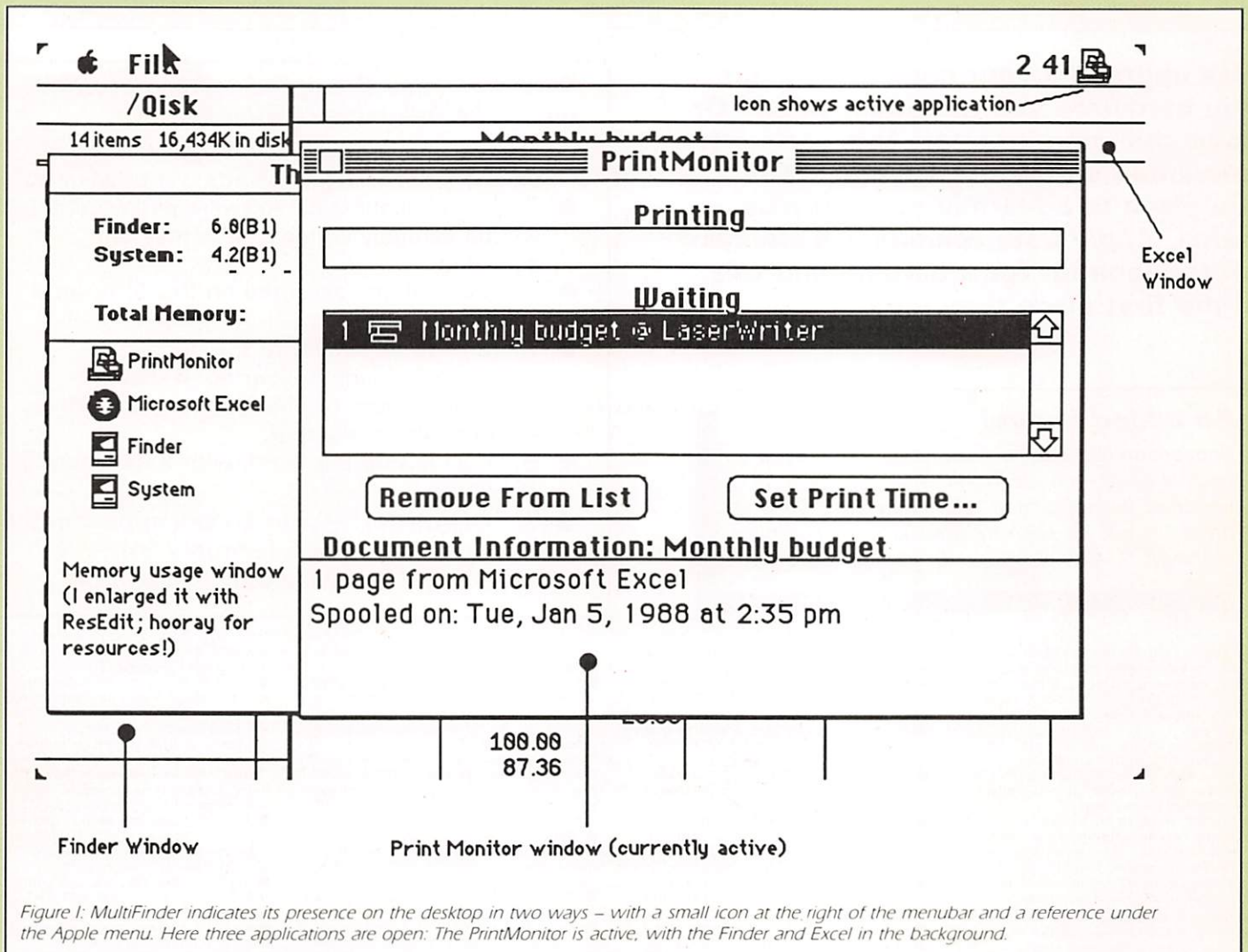


Figure 1: MultiFinder indicates its presence on the desktop in two ways – with a small icon at the right of the menubar and a reference under the Apple menu. Here three applications are open: The PrintMonitor is active, with the Finder and Excel in the background.

some applications still do not support “zoom boxes”.

If you try to open a document that “belongs” to an application that is already open, you will get an error. The trouble is that if the application has no windows open and it is not in the foreground, then there is nothing on the desktop to remind you that it is open: The application’s icon is dimmed, but that may be in a closed folder.

Many people, especially those new to the Mac, are baffled by this error message. I think that MultiFinder should at least bring the application to the foreground before displaying the error message or, even better, force the application to open the document.

One serious problem is that if one application bombs, the whole system crashes. Only hardware memory protection can adequately protect running applications – and the system – from one another. This may be a future option on the Mac II, but it is unlikely that this will be offered to Mac-Plus and SE users.

Most applications that I tried worked with MultiFinder, even ones that were written in the days of the 128k Mac, and this is a tribute to Apple’s software engineers. It

seemed to work well with all the INITs and FKEYs that I had in my system except for Popkeys 3.0.

Development problems

Some programs run, but do not update their windows correctly. The “Stars” DA is one of these. Some DAs do not check for out-of-memory errors and froze the system when I tried to paste a large clipboard into it (McSink).

Under MultiFinder, if you launch an application from within HyperCard, it does not return to HyperCard when you quit, but to the Finder.

But, as I said earlier, developers are working to fix these problems, and by the time you read this, MultiFinder compatible versions should be available. In the meantime, make sure your discs are backed up.

Remember also that MultiFinder comes with a new System and Finder, and the compatibility problems may be because of them.

There are reports that PageMaker 2.0 has a problem with the new FOND resource

that result in menus and dialogues being messed up.

It is possible to disable MultiFinder temporarily by restarting the Mac and holding the command key down while it boots. This allows you to test whether it is a MultiFinder compatibility problem, and to run “rogue” applications. To disable MultiFinder permanently, set the startup application to be the Finder. If you have disabled MultiFinder, you can restart MultiFinder by holding down the Option and Command keys while double-clicking on its icon.

Conclusions

For the moment, I have gone back to using Finder 6.0 on its own: It’s not that I don’t like MultiFinder – it has lived up to all the rumours about it – it’s just that 1Mb is not enough memory to use it properly. I will be getting a memory upgrade as soon as I can afford one, which is a good indication of how much I liked it.

On the Mac II I use at work, I run MultiFinder all the time with no problems – and would not want to go back to using just the Finder. □

Apple Writer made easier

Tab and print format files

You can set up special tab and print format files and save them on a disc by using the Control+Q menu. If you want to use these files immediately after starting up, you don't need to use the Control+Q menu: Start up Apple Writer, but when the copyright screen appears, remove the program disc and insert the disc with your special versions of the tab and print format files which must have the names SYS.TAB and SYS.PRT. With the Prodos version of Apple Writer, this disc must have the same volume name as the program disc, for example, AW2MASTER.

Using your printer as a typewriter

The Apple IIe and Prodos versions of Apple Writer have an option in the Control+Q menu to connect the keyboard directly to the printer. Some printers print out as you type, others print when you press the Return key. This can be useful for adding a postscript to a letter you have already printed.

Transferring text between computers

The Prodos version of Apple Writer has an option in the Control+O menu to set a printer/modem interface. You can then use the option in the Control+Q menu to transfer text files from one computer to another, for example, to or from a Macintosh or an IBM PC for which you will need a suitable communications program.

Addressing on an envelope

If you use Apple Writer for correspondence, type the address and print it out before you type the letter. You can embed a suitable left margin, say .LM20, before the address and perhaps also .LI1 for double spacing. Don't forget to reset the margin and spacing before printing the letter; the safest way is to embed the commands .LM0 and .LI0 after the address before you print it out.

Printing page numbers and footnotes

Apple Writer does not print out the page number and footnotes at the end of the last page unless you embed the .FF code at the end of the document. Do not press the Return key after the .FF, otherwise it may print another page bearing only a page number.

Using the top margin

If you set the top margin to zero, you may find that the first two printed lines are too close together, especially with hand fed

Geoff Wood offers more of his tested tips for Apple Writer users

paper. If so, leave the top margin set at one line, even though it makes it more difficult to locate the exact position of the first printed line on letterheads or forms.

Counting the words

The Apple Writer disc has a WPL program for counting the number of words in a file. On some versions it is called COUNT, on other versions COUNTER. To operate it, press Control P, type DO COUNT (or DO COUNTER), press the Return key and enter the name of the file. It loads in the file and, after a time, displays the number of words in the file.

How does it work? It converts all the carriage returns to spaces, converts all the multiple space gaps to single spaces, then counts the total number of spaces.

A faster but less accurate method is to take the number of characters in the file, as displayed on the data line, and divide it by six.

Locking files for protection

When you save a file with a name that is already on the disc, the Prodos version of Apple Writer asks if you want to replace the original file but Dos3.3 versions do not – Nor does the Prodos version if you use the = sign with Control+S.) To prevent accidental loss of important files, use Control+O and C to lock the files. It is easy to unlock a file if you wish to amend it.

Saving disc space with shortened files

If you load in a Dos3.3 file, shorten it and resave it, the file still uses the same amount of disc space as the original file. You can save disc space by deleting the file from the disc before resaving it. Prodos automatically uses fewer blocks, provided you have deleted sufficient text.

Rearranging files on a disc

If you have several files on a disc and you load in and expand some of the earlier files and save them, the extra text is saved on tracks which are not adjacent to the first version. Eventually, you may have problems because the read/write head in the disc drive has to jump tracks as it loads in the file.

To avoid this problem, load in each file in

turn and save it on a new disc. Alternatively, you can use the Apple Filer program or similar utility to copy the files from one disc to another. Don't just copy the disc: This makes an exact copy of the original disc, so you may have the same problem.

Using the Word Processing Language

Newcomers to computing may find the Word Processing Language (WPL) formidable but it's easier than Basic because it has fewer commands. If you follow the manual, you should soon be able to write some very useful programs. For example, you can get it to number or renumber the paragraphs in a document.

Printing lines starting with full stops

A full stop after a carriage return tells Apple Writer not to print that line but to interpret any embedded code that follows the full stop. To print a line of full stops, or a line that starts with a full stop, the manual tells you to leave a space at the beginning of the line. However, this space is apparent on the printout.

To eliminate this space, set the left margin for all the text to at least 1, then embed margin settings .LM1 and .LM+1 before and after the line that starts with a full stop.

Alternatively, you can use space characters instead of a carriage return before the line that starts with a full stop. If the margins for printing do not correspond with the screen display, you can adjust the number of spaces so that it prints the full stop at the beginning of the line. Test it by printing the text to the screen.

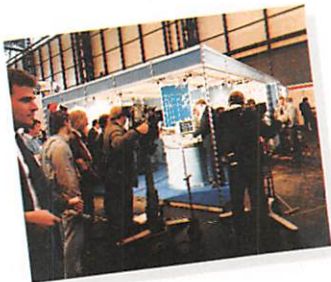
Printing 1.5 spacing

Apple Writer can print with double spacing (.LI1), giving three lines per inch with most printers. Some printers can be set to give eight lines per inch, which, with double spacing, prints four lines per inch, equivalent to 1.5 line spacing.

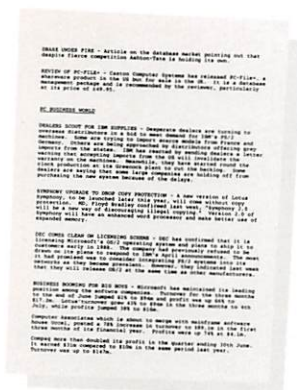
On some printers, the line spacing can be set by sending Escape codes which can be embedded in Apple Writer by using Control V.

Using the glossary

If you use certain words or phrases frequently, put them into a Glossary file which you can load in off a disc. Although these are limited to 2048 characters, you can have as many Glossary files as you wish, and each could include a command, say, gControl Qe, to load in another Glossary file. □



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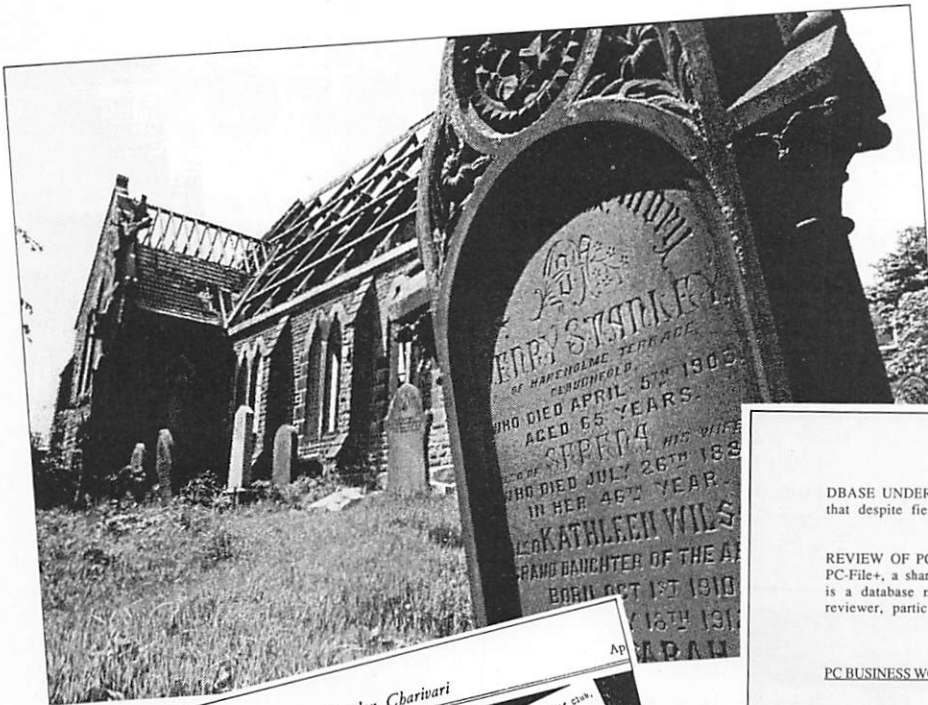
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DBASE UNDER FIRE - Article on the database market pointing out that despite fierce competition Ashton-Tate is holding its own.

REVIEW OF PC-FILE+ - Caxton Computer Systems has released PC-File+, a shareware product in the US but for sale in the UK. It is a database management package and is recommended by the reviewer, particularly at its price of £49.95.

PC BUSINESS WORLD

DEALERS SCOUT FOR IBM SUPPLIES - Desperate dealers are turning to overseas distributors in a bid to meet demand for IBM's PS/2 machines. Some are trying to import scarce models from France and Germany. Others are being approached by distributors offering grey imports from the states. IBM has reacted by sending dealers a letter warning that accepting imports from the US will invalidate the warranty on the machines. Meanwhile, they have started round the clock production at its Greenock plant to cut the backlog. Some dealers are saying that some large companies are holding off from purchasing the new system because of the delays.

SYMPHONY UPGRADE TO DROP COPY PROTECTION - A new version of Lotus Symphony, to be launched later this year, will come without copy protection. MD, Floyd Bradley confirmed last week, "Symphony 2.0 will be a new way of discouraging illegal copying." Version 2.0 of Symphony will have an enhanced word processor and make better use of expanded memory.

DEC COMES CLEAN ON LICENSING SCHEME - DEC has confirmed that it is licensing Microsoft's OS/2 operating system and plans to ship it to customers early in 1988. The company had previously refused to be drawn on its plans to respond to IBM's April announcements. The most it had promised was to consider integrating PS/2 systems into its networks as they became prevalent. However, they indicated last week that they will release OS/2 at the same time as other manufacturers.

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TENOVA



Stacks and shares

NEW releases are coming thick and fast for HyperCard, and in the last few weeks I've managed to get hold of a series of 20 discs of stackware which are being distributed by Educomp in the States. Each disc contains one stack or series of related ones, the majority of which are in the public domain.

This is reflected in the price: \$8.50 per disc, reducing to as little as \$4.99 per disc if you buy the complete series. A few of the stacks are shareware, requesting a nominal payment in return for which you may receive information or an unrestricted ver-

Chris Payne explores the latest HyperCard compilations

sion of the stack.

The sheer variety is quite bewildering and just shows how much Hypercard has been embraced by the American Macintosh owners. And even if you are not particularly interested in the contents of a

stack, you will find a wealth of ideas in the screen layouts, graphics and clever Hyper-talk routines which you can easily incorporate into your own discs. Indeed what makes some of the stacks so interesting is that they positively invite you to modify and develop them further to suit your own needs.

In order to squeeze as much as possible on to a single disc, some stacks have been compacted using PackIt, but these can be reconstructed on to a blank disc within a few minutes. Two of the stacks, each taking up a disc, have already been mentioned in this column – Macazine (the Hypercard equivalent of the popular US magazine) and Megacorp (the new-employee orientation guide for a fictional company) – but most of the rest were completely new to me.



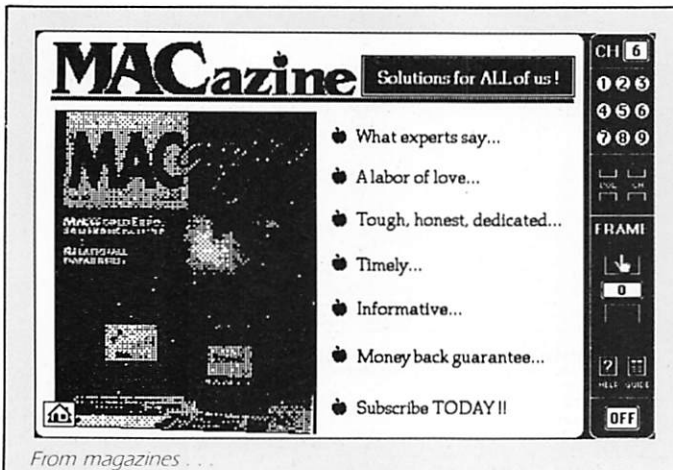
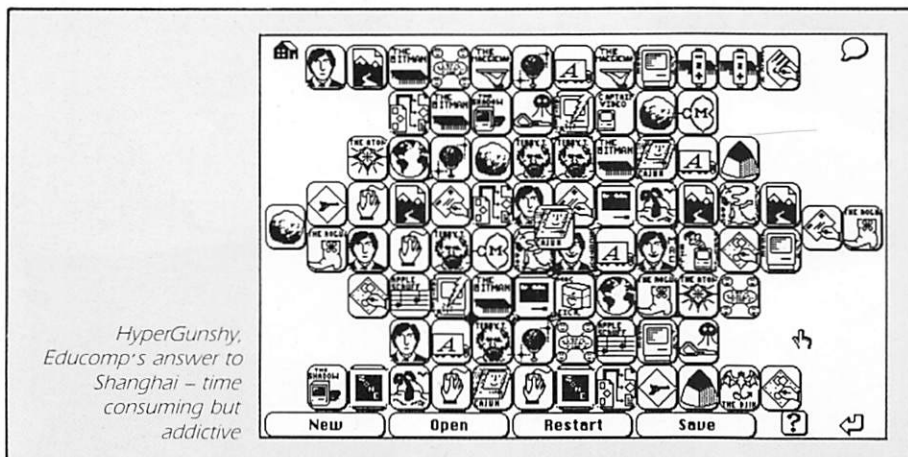
Wide range

On the information side, one disc is taken up with a 688k AIDS stack which offers comprehensive information about the virus, how it has spread across the US and so on. It is one of the most professional offerings in the series, with some attention-grabbing animation at the beginning and a wealth of clearly laid-out text, maps and graphs.

On another disc there's a vitamins and minerals guide, and a detailed periodic table for budding chemists. A further disc acts as a standalone information centre for the 1987 MacWorld Expo in Boston.

There's help for a wide range of packages such as FullPaint, SuperPaint, MacDraw, PageMaker, Excel and many others – each in a separate stack, neatly laid out and well worth referring to for new techniques or shortcuts. And it's no surprise to find an interactive guide to programming in Hyper-talk too. However, only a few commands are covered – you have to pay to get the rest.

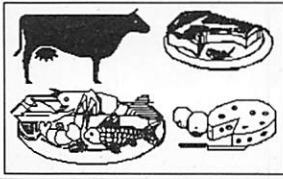
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Where Found
Liver, Kidney,
muscle meats,
fish and dairy
products.

Effective With
B-Complex, B-6,
Choline, Folic
Acid, Inositol,
Vitamin C,
Potassium.

Quick-reference vitamin facts

Periodic Table of the Elements

File Edit Go

Group 1A 2A 3A 4A 5A 6A 7A 8A 1B 2B 3B 4B 5B 6B 7B 8 9 10 11 12 13 14 15 16 17 18

1 H 2 He
3 Li 4 Be 5 B 6 C 7 N 8 O 9 F 10 Ne
11 Na 12 Mg 13 Al 14 Si 15 P 16 S 17 Cl 18 Ar
19 K 20 Ca 21 Sc 22 Ti 23 V 24 Cr 25 Mn 26 Fe 27 Co 28 Ni 29 Cu 30 Zn 31 Ga 32 Ge 33 As 34 Se 35 Br 36 Kr
37 Rb 38 Sr 39 Y 40 Zr 41 Nb 42 Mo 43 Tc 44 Ru 45 Rh 46 Pd 47 Ag 48 Cd 49 In 50 Sn 51 Sb 52 Te 53 I 54 Xe
55 Cs 56 Ba 57 La 58 Ce 59 Pr 60 Nd 61 Pm 62 Sm 63 Eu 64 Gd 65 Tb 66 Dy 67 Ho 68 Er 69 Tm 70 Yb 71 Lu
72 Hf 73 Ta 74 W 75 Re 76 Os 77 Ir 78 Pt 79 Au 80 Hg 81 Tl 82 Pb 83 Bi 84 Po 85 At 86 Rn
87 Fr 88 Ra 89 Ac 90 Th 91 Pa 92 U 93 Np 94 Pu 95 Am 96 Cm 97 Bk 98 Cf 99 Es 100 Fm 101 Md 102 No 103 Lr

● Synthetically Made
Grey - Liquid • Bold - Gas
Normal - Solid

Reference guide for budding chemists

collections and others to do the same for your wines, recipes, clip art and books. The restaurant guide may help you choose the best places to eat, though at the moment the only ones listed are in the States.

One disc is devoted to a working demo of Business Class. It covers just England and France rather than the complete 65 countries which can be found in the commercial version, but there is enough there to give you a good idea of its potential.

The kid's disc includes Inigo Gets Out, the animated story I enthused about last month. Other delights include Laura's Letters which teaches letters and numbers using a digitised voice, SpellTest which gives a verbal spelling quiz and FlashCards, a teaching aid for babies as young as six months. However, you will need Macintosh to get many of these stacks to speak.

and assorted images linked to a portion of a speech he gave on HyperCard – and which lasts for a total of about 30 seconds. In similar vein, the new series of Star Trek introduces you to the characters with superb digitised sound and graphics.

For those interested in games, most promising offering is HyperGunshy, which is very similar to Activision's Shanghai. Its main disadvantage is that it takes a number of minutes to set up each game, but it's amazingly addictive as you remove matching pairs of icons in a bid to clear the pile and reveal the image underneath. An added bonus is that you can change the icons to those of your favourite applications using ResEdit.

Educomp has done an excellent job in

compiling this first series of stackware. I can ill afford room on my hard disc for greedy memory-grabbing software which I rarely use, but I found quite a few stacks which were sufficiently useful to warrant a permanent space on the disc, and many more have been archived for future use.

Stacks I have trashed include the collection of toilet cartoons, a collation called Evil Noises, another rejoicing in the name of Ron's Hot Fudge, a potato-head maker and various other similar mischief.

By all means send off to Educomp for a complete catalogue: But I think you will find that many of the best stacks will be available from public domain libraries and bulletin boards for a nominal fee.


● For further details, contact Educomp

Utilities

Utilities include minifinders with Shut-down XCMD, stack detectives to enable you to delve into protected stacks and read all the scripts, a routine to add PostScript printing, another enabling you to import any tab-delimited text file into a new stack and a further one which means you can add your own pull-down menus.

Fascinating – but quite useless – is Bill Sez..., a 600k stack which consists of pictures of HyperCard's creator Bill Atkinson

The 688k AIDS stack
– professional and
well-presented




**AIDS HOTLINES
AND INFORMATION
BY GEOGRAPHIC AREA**
CLICK ON STATE NAME

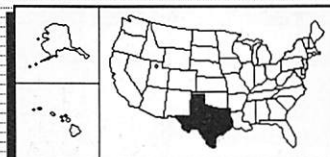
THE AIDS STACK

- ☐ Basic AIDS Information
- ☐ Commonly Asked Questions
- ☐ Glossary
- ☐ AIDS Related Symptoms
- ☐ AIDS Information In Your Area
- ☐ Statistics and Charts
- ☐ Introduction Animation
- ☐ Information on This Stack

BUTTON NOTE: These buttons occur throughout The AIDS Stack and can aid navigation through the stack. Click on any button to reveal its use.



The AIDS Stack was designed and written by Michael Tidmus. Intended as a diverse compendium of information for those concerned with the disease AIDS. The AIDS Stack was created as Shareware. If you find this information useful, please see "Information on This Stack" for information on how and where to send a small donation and play a part in the fight against AIDS.



**INFORMATION
FOR AREA
INDICATED**

NATIONAL AIDS-RELATED ORGANIZATIONS

- AIDS Action Council
- Federation of AIDS Related Organizations
- 1115 1/2 Independence Avenue, SE
- Washington, D.C. 20003
- 202 547 3101
- 202 547 3102

• TEXAS
State Department of Health
512 458 7504

• AUSTIN
Austin AIDS Project
6901 North Lamar, Suite 109
Austin, TX 78752
512 452 5966

• DALLAS
AIDS Task Force
Dallas Gay Alliance
P.O. Box 190712
Dallas, TX 75219
214 528 4233
Oak Lawn Counseling Center
AIDS Action Project
3409 Oak Lawn, Suite 202

Creative tools for creative people

CONTINUING our glossary of terms to help you understand creative artwork in the computing world.

MTBF: Or Mean Time Before Failure – essential data especially for electro-mechanical devices such as printers and disc drives. The data is not often given in the manuals of cheap dot matrix printers, but it is there with the better printers or in the service manuals.

For example, for the Epson FX-85 the MTBF is 5 million lines for the mechanism (excluding the print head) which is about 4000 hours of printing at 50 per cent page density. The print head has about a 100 million character life. Other printer manufacturers claim an MTBF of between 2500 and 5000 hours.

The rated life of a laser printer engine is from 180,000 to 800,000 pages. Always check the MTBF, engine life, and monthly duty cycle – usually around 10,000 pages per month – before deciding which laser printer to buy. Hard discs usually have MTBFs above 20,000 hours, some manufacturers claim 30,000 and even 40,000 hours.

NLQ: An abbreviation for Near Letter Quality which refers to printed output on dot matrix printers. Characters are made of overlapping dots forming a solid outline rather than characters with the dots visible, typically of the faster “draft” modes.

NORMAL: Refers to a white screen image on a black background. If printing in normal mode the dot which is printed on paper as black appears on the screen as white – or amber, green or whatever. The opposite mode is INVERSE.

OCR: Optical Character Recognition, see Scanner.

Overlay: Has rather different meanings in diverse environments. For example, with a font editor overlay signifies transfer of characters from the original cell on top of whatever is occupying the target cell (edit window). You can therefore combine several characters in the edit window and create a new one.

However, in some programs there is a special typing mode where the overlay mode signifies non-destructive placement of a character over the background or another character. See also **Transparency film** in connection with creating a product or semi-product.

Page layout: Refers to the design of

Part 5 of
Jaromir Smejck's series
on imaginative
computing

documents for printing. Look at some different magazines and notice how some are in two column format, others in three: There are vertical and horizontal rules, lined boxes, pictures and other graphical elements.

To think like a layout designer is your most important step. First the basics. How many columns, how wide, how many graphics and how are they to be placed? Later you will add borders, lines and rules. Photos and drawings may be **Cropped** to eliminate unwanted parts and maybe enlarged or reduced to suit. With the Apple II family you can start with the simple page layout software with limited features as in Springboard's Newsroom and later turn to more extensive programs such as the new Springboard Publisher.

With fully featured page layout programs you can create excellent output with full control over all elements of design. If you don't have such software you should use the traditional typographical method – **Paste-up**

Paper: Best results will be obtained from your printer or copier with premium quality paper with a smooth finish for sharp imaging. If using pin-feed paper on the printer, use the clean-edge, micro-perforated kind. For certain purposes colour ribbons and tinted paper (and maybe matching envelopes) can add flair to your document. Antique-gold textured copy parchment paper is excellent for both copying and printing to produce certificates, diplomas, invitations and so on.

Paste-up: Traditional typographical term for creating the composite **Page-layout** by hand, using scissors and glue as the principal tools. First a designer integrates the text and graphics to prepare a draft layout, then the text is proof-read and corrected. Then the paste-up artist glues the headlines, text, captions and the graphic parts into place to create the final page layout.

This final page is sometimes referred to as camera-ready copy because the last step is to photograph it to create the plates for the printing process. Nowadays the

camera-ready copy can also be made directly on the plates. (See **Typesetting device**).

In our case you will be a one man team creating the page layout. All the paste-up work can be done by computer with the right software, but for many the traditional “paste-up by hand” will suffice, using computer generated text complemented by letters, symbols, designs and pictures from Letraset type sheets or from the Instant Artwork volumes.

You can also use **Transparency film** to create impressive effects. Note too that the size of the page layout can be different if you plan to use a copy machine with enlarging/reducing facilities and that, as the creators of **PostScript** stressed, “the total impact of a printed page depends on a complex interplay of presence and absence, light and dark, symmetry and asymmetry, uniformity and variety.”

Patterns: You can create different patterns (textures) as graphic layout to fill enclosed areas or to make broad lines. In some programs you can also choose colours other than black or white for the background and foreground. These appear as different dot patterns both on the monochrome screen and the printed output.

In the latter case the result is often confused with the result from different **Density** because of the similarity of output. Here the dimensions are the same, only the dot patterns (visually perceived as thickness) of the graphics are different. The thickest are in black and the patterns look and naturally print different in normal and inverse modes.

The Print Shop Companion (along with some other software) uses the term “patterns” in its font editor for real graphic layout patterns which have nothing in common with patterns as monochromatic expressions of colours.

PEL: An abbreviation of Picture Element: see **Pixel**.

Pica: A fundamental unit of typographic measurement. A pica equals 0.16605 (about one sixth) of an inch. The pica is in turn divided into 12 points. See **Type size**.

Pin: The printing element in a dot matrix printer's head. The diameter is about 0.2 – 0.3 mm.

Pin stripe: A very unpleasant effect – white stripes within the black areas of a **Screen dump** with some **Dot matrix printers**. With some software (for example Print-Quick) or hardware (for

example Snapshot) you can elect to use an overstrike mode which causes the printer head to make two passes of the paper for each line printed. The second pass fills in the gaps left by the first and effectively removes the pin stripes.

Pitch: Usual measure of the number of characters in one line for a particular **Type size**. The dot matrix pica has 10 characters to the inch, Elite 12. Sometimes you will also see the term "vertical dot pitch" which is the smallest possible line spacing on a particular printer. See also **Font** and **Point:** Also used in connection with colour **Monitor resolution**.

Pixel: One picture element (dot) on the screen. Some suppliers also use the term PEL (picture element). When printing in normal mode and normal size one pixel equals one dot.

Point: Typographical measurements of **Type size**. One point (pt) equals almost exactly 1/72 inches and with dot matrix printers one point is usually the distance between neighbouring printer head pins in 7, 8 or 9 pin machines. There are 12 points to the **Pica**.

PostScript: A device-independent language. Software applications generate the PostScript code which describes all the text and graphics of a document. The printer interprets this code and creates a raster (dot) image at the printer's resolution which is transferred to paper or film. A PostScript file from any computer (Apple II, Macintosh, IBM and so on) can be printed on any PostScript printer such as the LaserWriter and the Linotronic 101 and 300.

Post-shade: A feature to enable a large area of black to be printed shaded. Figure I shows normal, pre and post-shaded print-outs.

Pre-shade: A feature to enable large areas of white to be printed shaded. See Figure I for an example.

Printing: In the Apple sense, an image from the screen becomes a snapshot on paper by printing (**Screen dump**). Or, a graphic may be printed directly without creating it first on the screen (for example from the Fontrix Grafile).

Printing is not always a simple process – Apple graphics often look much more impressive on the screen than on paper. Most good hi-res programs allow you to print double size or larger but the resolution stays the same.

Publishing: Armed with an Apple II and the right software your dot matrix printer becomes a good alternative to expensive, time consuming graphics and typesetting services. Maximise your creative ability and your system's potential, but use its features sparingly. The document with 10 different fonts and a multitude of styles on the page will never be as effective as one with three or four fonts and just a couple of styles. The

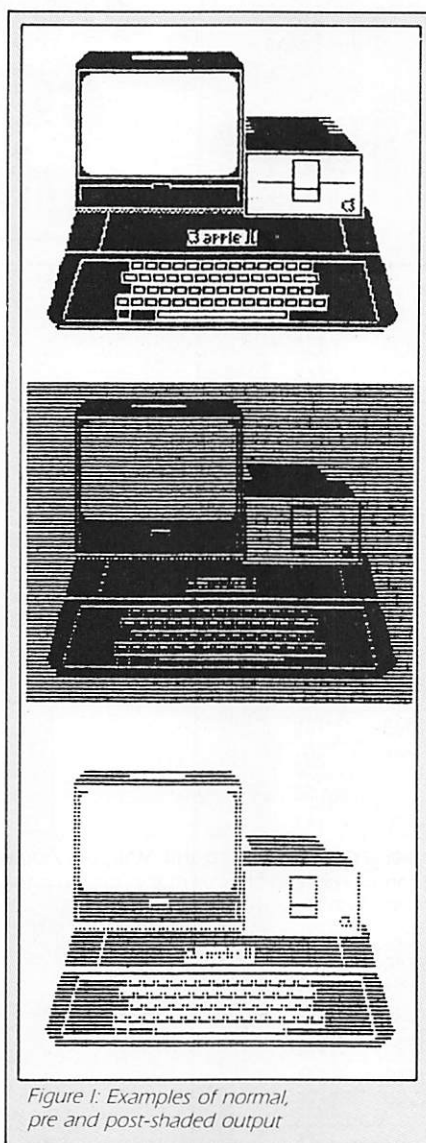


Figure I: Examples of normal, pre and post-shaded output

only likely exception to this rule is a very rare one, perhaps an invitation to a crazy carnival.

Printer: Here we will concentrate on the impact **Dot matrix printers** because they are adequate for most creations. **Laser printers** are without question the best for professional appearance, but still expensive, though you do not need a Mac to use one – an Apple II will do as well. Plotters are not really suitable for creating graphics for publication.

Unless otherwise mentioned, all the figures in this series were created on an Epson FX-85 with a true 1:1 printing ratio with a resolution of 72 x 72 dpi. Better results would come from one of the more expensive, 24-pin dot matrix or a laser printer.

Note that most software does not allow you to send printer control codes, having no way of creating **Printer drivers**. Thus you can only manipulate effects such as density with the fixed, program choices available.

With the printer comes the printer

interface card which is nearly as important – you certainly need one with graphics capabilities. A good choice is the Epson 8132 Apple Parallel card as long as the Image Maker eprom from Dark Star Systems is fitted. This is because practically all software supports the Epson card. Likewise the Grappler – or one of its clones – is well supported.

Some cards, like the Videx PKASO can print both hi-res and lo-res screens in

Halftone, photo-like graphics with a 16-level grey scale.

Printer driver: A piece of software which translates a program's output to the form needed for a particular model of printer. It is important to have the correct driver to obtain a **Screen dump** with a true 1:1 **Ratio**.

Proportional spacing: A feature where different characters take different widths. An i, for example, does not need the same horizontal space as an m.

An annoying disadvantage of many programs running on the Apple II with proportionally spaced fonts is the poor editing facilities. Backspacing for example, within Fontrix or Shape Mechanics, to delete and retype a character, is not easily possible. Honourable exceptions to this are Multiscribe and the Print Shop (and all Mac and IIGs specific programs) where you do simply backspace and type the new character.

Ratio: If the X and Y axes of the printed hi-res image have the same ratio as expected on the monitor display then we call this a true 1:1 ratio – for example when a circle appears as a circle on both the monitor and the paper. The ratio does depend on the print Density. For most work a ratio of 1:1 is a necessity due to the design of fonts and pictures.

Some software allows you limited control over the print density. For example Fontrix will not allow true 1:1 printing on an Epson FX-85. The way round the problem is to print with the Fontrix magnification ratio of 3:2. The printout will be in a 1:1 ratio, but with dual density and double size – each pixel on the screen will be printed as two dots.

There is no easy way to get a true 1:1 print ratio with one dot on the screen represented by one dot on the paper. Using Fontrix's magnification ratio of 2:1 you will get one to one dot printing but with the infamous Epson 1.2:1 ratio. The annoying thing is that the newest version of Fontrix (v.1.5) has new **Printer drivers** for the Epson printers, but unimproved results.

In such cases or if the software is totally incapable of directing a 1:1 ratio, or if you wish to dump from protected software, you will have to use a special card such as Dark Star's Snapshot with the Printinterrupt software and with this you can also crop or invert select density.

● More next month.

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ILLUSTRATOR	450	365
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CRICKET DRAW	295	225
MAC DRAFT	269	168
MAC AUTHOR	199	144
EZ-PUBLISH	395	325
WORD 3	295	199
QUARK XPRESS	695	595
VICOM	150	113
MS WORKS	245	178
MORE	295	160
TRAPEZE	295	189
LOTUS JAZZ	295	234
LASERWRITER FONTS	From 33	
MULTIPLAN	150	117
OMNIS III PLUS	445	298
MACMAX DBASE		295
HARDWARE		
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THUNDERSCAN +	284	239
POSTSCRIPT LASER PRINTER	4500	3378
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MACSCANNER	1650	1345
HYPERCHARGER SE	1295	1095
LASER TONER BLACK	99	75
IMAGEWRITER EMULATION- CARD FOR FX, RX, LX	100	85

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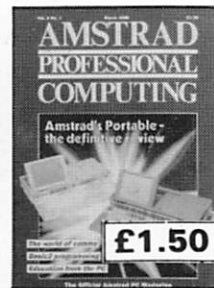
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Keeping in touch

I BUY your magazine regularly because of its good articles and reviews. Would it be possible for you to send me information and addresses of user groups in Europe and possibly the USA? – **Geert Haller-neesch, Belgium.**

● If anyone sends in addresses and information of mainland Europe user groups we will print them here and pass them on to Geert.

You could try POM'S at Editions MEV, 64/70 rue de Chantiers, 78000 Versailles, France for more information. There are many USA user groups but we don't know most of their addresses. Since we are all in Europe, it's probably only worth considering those with regular publications.

So, try the Apple Co-op at A.P.P.L.E. Co-op, 290 S.W. 43rd Street, Renton, WA 98055, USA and for general Apple II information Open Apple at P.O. Box 6331, Syracuse, N.Y. 13217, USA.

Ilgs comms

HAVING just started using my Ilgs with the Gazelle and Miracle Technology's WS4000, I have been reading the recent articles on Ilgs comms with great interest. I have also had problems with the Ilgs cable connections due mainly to the lack of compatibility/commonality of the Ilgs and WS4000 manuals and technology.

To avoid anyone else having to go through the same problems the system will work with the following minimum pin connections:

Apple Pin	WS2000 RS232C pin
Frame Grnd	1 (Frame Grnd)
5	2
3	3
4	7

To avoid everyone going out to buy a serial card just to handle split baud rates on the Ilgs, using a speed buffered modem such as the WS4000 solves the problem. Just set the Ilgs and the Gazelle on 1200 full duplex and the WS4000 handles the changes to 1200/75. – **R.J. Potts, Poole.**

● Thank you for the information. It was very remiss of me not to point out the use of a speed buffered modem to handle split rates – **Max Parrott.**

Secret passages

ON your recently published Games Disc 2, the adventure game *The Perils of Princess Emmiline* has baffled and annoyed us continually. First of all, trapped in the castle only to be refused exit by the guards, we could not possibly see a way to get out. Then while the king was absent we were helped to the panelling behind the throne where an extremely bad joke was printed on the screen. On further examination the panelling sprang back in our faces and to our astonishment a secret passage was revealed, so we entered it.

It is from this point that we write to you because *!We! !can't! !get! !out!*

Please, please, please help us with this problem. We would be eternally grateful. Yours, getting angrier by the second – **Daniel Henderson and Stuart Walker, Cheshire.**

● In order to see the way out through the secret passage, you need a light. There is a lantern in the locked cupboard in the outer guardroom. The key can be found by examining the contents of the wardrobe in the empty bedroom. Matches are easily available in the kitchen.

Before you leave the castle, I hope you thoroughly explore the treasury because there is an item there which you will need later. Command the guard to let you pass – after all, you are meant to be of royal blood! Good Luck. – **Denise McKnight.**

Sound effects

I HAVE recently bought a Mockingboard for my Apple IIe. I'd like to give anyone else who plans to buy one an advanced warning, if headphones or Walkman style speakers are going to be used. You may have to cut into your Apple's case (as I had to do) to ensure that the headphone jack will go into the socket because the placing of the socket is directly in line with the top part of the back of the computer.

Even if you plan to run the board through an amplifier, you will probably have to cut into the back of the case, so the leads will go into their connectors.

Even though the Mockingboard is great for sound effects, it only works on one of my games, namely Skyfox but the manual claims it will work on others such as Poppye, Lady Tut, Spy Strikes Back and Digital Dimension. It's a pity that I only have Skyfox out of all the games listed.

I would like to be able to program the board but the measly manual of 24, extremely small, pages does not help one bit. Could you help by giving me any advice about programming the Mockingboard and any books or Mockingboard-related software which is available?

If there is nothing available you will probably reduce me to tears, as it is a bit much buying an expensive card which only works with one game. – **Kevin Gordon, Burgess Hill.**

● We would love to help but have no programming experience with the Mockingboard for the reasons you outline – it was too expensive for us to buy without a very good reason for doing so.

We're not aware of any books but, from past experience on these pages, there are many people who do have a Mockingboard so perhaps some information will arise. If anyone wants to write an article on programming the Mockingboard.....

Mac transfers

I AM a freelance writer working with a Macintosh Plus, Rodine 20mb hard disc, ImageWriter II and MacAuthor, about which I am enthusiastic to the point of evangelism. With no experience of computers at all, ever, I was up and earning, while learning, within two days, which speaks volumes for both the Mac's original concept and for MacAuthor.

The problem is straightforward. I work on Mac. My clients work mainly on IBM. They want to put my work through their equipment for presentation to their clients on their headed paper and handle the small revisions themselves. Sometimes they want my work to go straight to photosetting on disc, which is an obvious time and cost saver.

Question 1. What's the easiest way for me to get from a Mac document to an IBM ►

◁ disc that clients of mine can use straight into their IBM based word processors?

Presumably I copy text only on to a floppy as the first step. Then what? I don't want to get into new hardware or software and neither do they. Are there any translation houses? Near me? What sort of cost?

Question 2. What photosetting systems use what Mac discs? Do they want them single or double-sides? Presumably text only?

There's so much technology around nowadays, but no-one has gathered up all the loose ends for people who are relatively unversed in the arcane workings of the systems, but who know they want to get from A to B in an effort to give better service.

Maybe Apple User should start a lay guide on how to use what facilities and services to get from the creative end to the printed end via as many different systems as possible? Like how would I get from this letter into a Rank Xerox Ethernet Office and Documenter without re-inputting? Or anything else? — **Paul Cloutman, The Creative Process, London.**

● Moving plain, vanilla, text files between Macs and IBMs is not difficult — we do it all the time so it can't be. However, you say you don't want to buy any new hardware or software. This presumably rules out direct transfer because you and your clients would need comms software and a cable to connect the two machines or a modem on each machine and the telephone system.

Alternatively, if both had access to a service like MicroLink (via the modems) you could use that to transfer the files.

There are many companies who offer conversion services. For example, Microrite (01-252-8567) can convert across about 700 different formats. You'd have to talk to the company directly about price because it would obviously depend in part on volume.

All of these methods assume plain text files, which is a bit of a waste of MacAuth- or's sophistication and power. However, version 1.4 will allow you to save text files with a style markup, so your clients could use their word processors to re-create the style using the usual search and replace technique to substitute the appropriate commands for the style markers.

Many printing companies can now take copy on Mac discs, and they'll be able to cope with single or double-sided discs. For example, Imprint (01-935-7140) specialises in serving Mac and IBM owners — again, contact the company direct to talk about formats.

Connecting your Mac direct to an Ethernet system is possible, but likely to prove expensive (in the thousands of £s) because Appletalk and Ethernet use different protocols. Even then, you'd probably only be able to move text between the two systems, so why bother?

There are probably many people in a situation similar to yours. Things may get better now that IBM has adopted PostScript

as its page description language because PostScript files are plain text files. This fact has enabled us to output a PostScript file from Xerox Ventura Publisher on an IBM, send it via electronic mail to a mainframe, from where it was downloaded to a Mac and printed on a LaserWriter.

As usual then, it's "jam tomorrow". For today, you'll either have to do a little work in transferring files or pay someone else to do it for you. — **Cliff McKnight.**

User groups

I WOULD like to give details of the Gateway Computer Club in Suffolk via Feedback. Unfortunately, our chairman has been recalled to the States and so the contact for new members is now Phil Herberer, 164d Radcliffe Road, Lakenheath, Suffolk. Tel: (Eriswell) 2363.

We are a multi-user group and have over 150 members. The club has been active for almost five years and we meet on the third Sunday of each month at the Bob Hope Recreation Centre, at RAF Mildenhall, between 14:00 and 16:00 hours.

Some of the larger individual groups, that is Mac, Apple, MS-Dos, Atari and Commodore also have a separate, extra meeting at different times of the month. In November we had a successful families computing day at which Apple UK demonstrated the new Mac II with LaserWriter and desktop publishing software — we gained another 18 new members at that meeting.

At present our membership fee is £7 per year which is used to cover the monthly issue of the Gateway Gazette which averages 20 pages. We are presently moving from 10 to 17 cpi which will enable us to reduce costs significantly, or more probably, to increase the content by 50 per cent. — **Martin Randall, Publicity Officer, Gateway Computer Club, Suffolk.**

Linkword revisited

IN his recent review of my Linkword German and Russian courses, Lew Norris raises a number of interesting points.

First, he is critical of my not using Russian script. However, this is quite deliberate, as nothing puts off a beginner in learning a language like Russian more than having to learn Russian letters before you start. Far better, surely, to get into learning vocabulary and grammar as quickly as possible. At least then one can speak the language.

Second, he is critical of the kind of sentence I use in examples, such as "The goose is interesting", and suggests little

thought has gone into making up the sentences.

The reason the sentences take the form of being "silly" is that I wanted to get away from "parrot fashion" phrase learning. With "silly" sentences each word has to be translated and thought about.

Mr Norris also questions whether the images provided in the course for learning vocabulary work, for instance "The Spanish for cat is Gato" — imagine a cat eating a gateaux.

The answer is that they do. For example we found that in an independent test carried out by Thompson Holidays, 400 words and a basic grammar were acquired to virtual perfection in 12 hours, about three times the normal rate of learning, and while it is true that in some instances the individual can provide his own image, often people prefer to be given an image which has been found to be effective.

Clearly the reviewer did not give much time to the Linkword programs. Had he done so he would have found that the ability to pick up some 400 words and a basic grammar in some 8-12 hours is highly rewarding, especially for those who find language learning by conventional means boring or difficult.

As Paul Daniels remarked after using Linkword, "Memory systems go back a long way, but this is the first complete system that is ready to go. The simple truth is that one Monday morning at 9 a.m. I did not speak a single word of Spanish, and by the following Friday I knew 722 words. My brain reeled with the excitement of learning so much so fast."

Obviously, if like the reviewer you don't try it seriously, you won't find it exciting.

Finally, the Linkword courses are published by Perspective Software, 100 Baker Street, London, not Artworx/Linkword, although I fear that this was an error of our making. — **Michael M. Gruneberg.**

● Dr Gruneberg seems to have inferred criticism of the link system of memory whereas I was in fact critical of the program and course presentation.

Having used this memory system myself for various purposes over a number of years, I have been impressed with the results that are possible.

While I accept that Dr Gruneberg preferred the English to the Cyrillic alphabet for educational and psychological reasons, I find it paradoxical that a student should be asked to learn to read and write a language and yet remain illiterate.

A good Russian course gradually introduces the letters over a period of time using words and phrases containing only those letters the student knows at a given point.

I found learning the alphabet the least of my problems. Far from being put off, I was motivated by the thought of being able at long last to make some sense of these mysterious symbols. One can appreciate the difficulties, however, of attempting this on a home micro.

Since the 1950s language teaching has

been moving steadily away from meaningless sentences because of their negative effects on the learner. "The goose is interesting" is pallid and forgettable, especially as "is interesting" is repeated in other examples. It's difficult to see how such a sentence demands extra thought from a student.

To remember "leesa", the Russian for "fox", the student is invited: "Imagine Lisa Minnelli chasing a fox". If the creator of this example had ever heard Miss Minnelli sing "Liza", he would be wiser ... and appreciate my suspicion that more effort could have been put into some of the examples.

I did not question whether the images work: I thought my own image for "koshka" showed that. I merely felt that some of the visual links the course offered were weak.

If you have to visualise someone or something saying or singing something, you are in effect memorising text. I know from experience that a lot of such examples can be confusing.

The reason I suggest that your own mind-pictures are better is because you more easily remember things which are personally meaningful. Students will ultimately need to create their own visuals and discover what works for them and

what doesn't.

The program and its presentation, as distinct from the link method of memory, struck me as pedestrian. Interaction with the student is minimal and there are weaknesses which in my view would be better changed than defended.

As a teacher of modern languages, a former secondary school head of department and coordinator for computer-assisted instruction, I had a natural interest in these Linkword courses. I found them disappointing.

In my efforts to be fair, I did suggest that the courses could work and possibly form the springboard to in-depth study. Against that I feel that a prospective student would get better value by opting for a good audio or video course or even night school. The memory system can be equally well applied to any of these. — **Lew Norris.**

Keeping time

I READ with interest the letter from I.G. Harvey in the December issue of Apple User in which he asks about programs for the production of school timetables.

He may be interested to know that this

school has been using Rostar — published I think by Hutchinson — for the past few years or so to produce our own timetable.

The program has coped well with, at one stage, more than 1400 pupils and 90 staff.

If Mr Harvey would like to contact Mr D. Kemp, Deputy Head, we would be only too pleased to answer any questions he may have. — B.E. Timms, Frederick Gough School, Grange Lane South, Bottesford, Scunthorpe, South Humberside DN16 3NG. □



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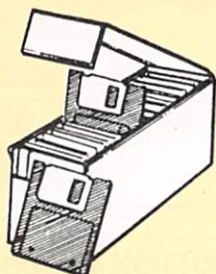
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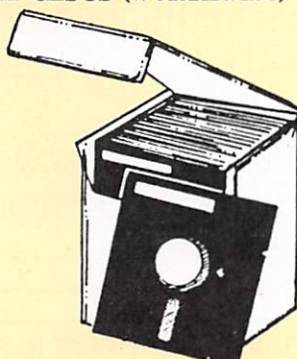


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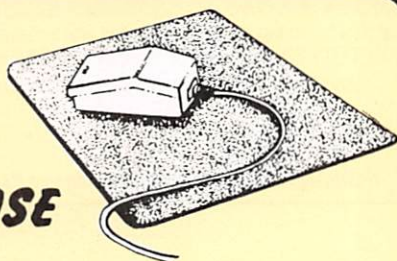
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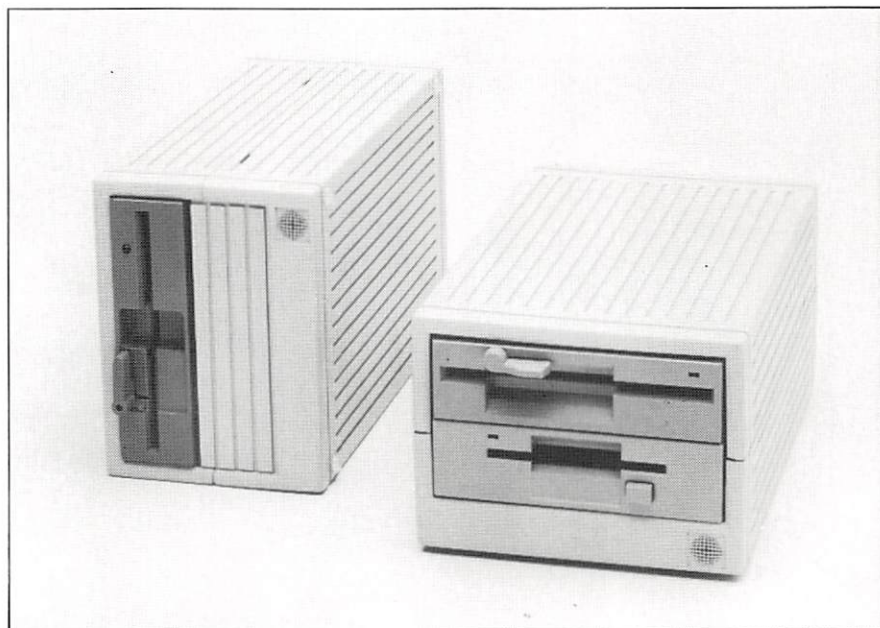
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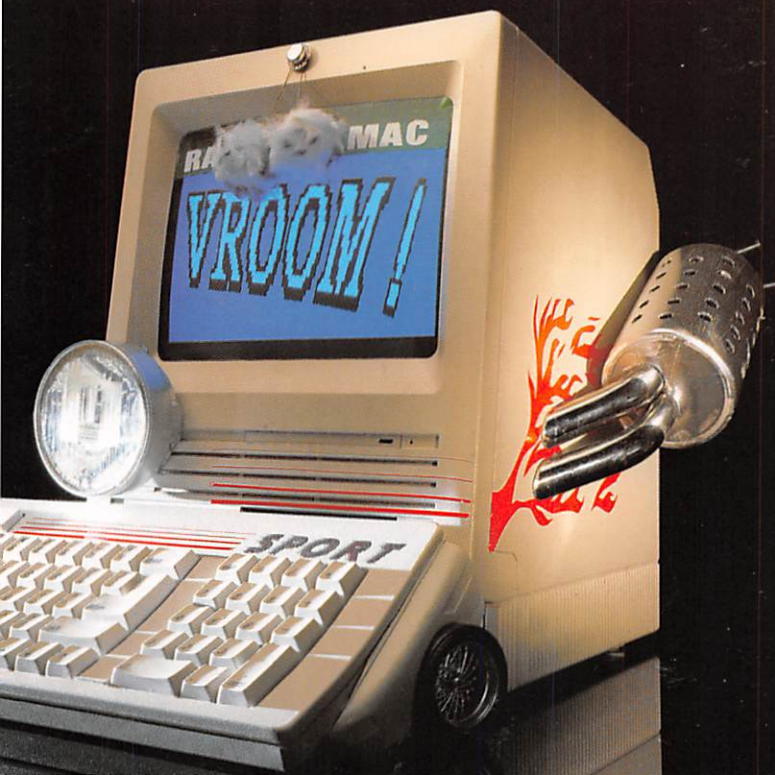
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